Technology Review

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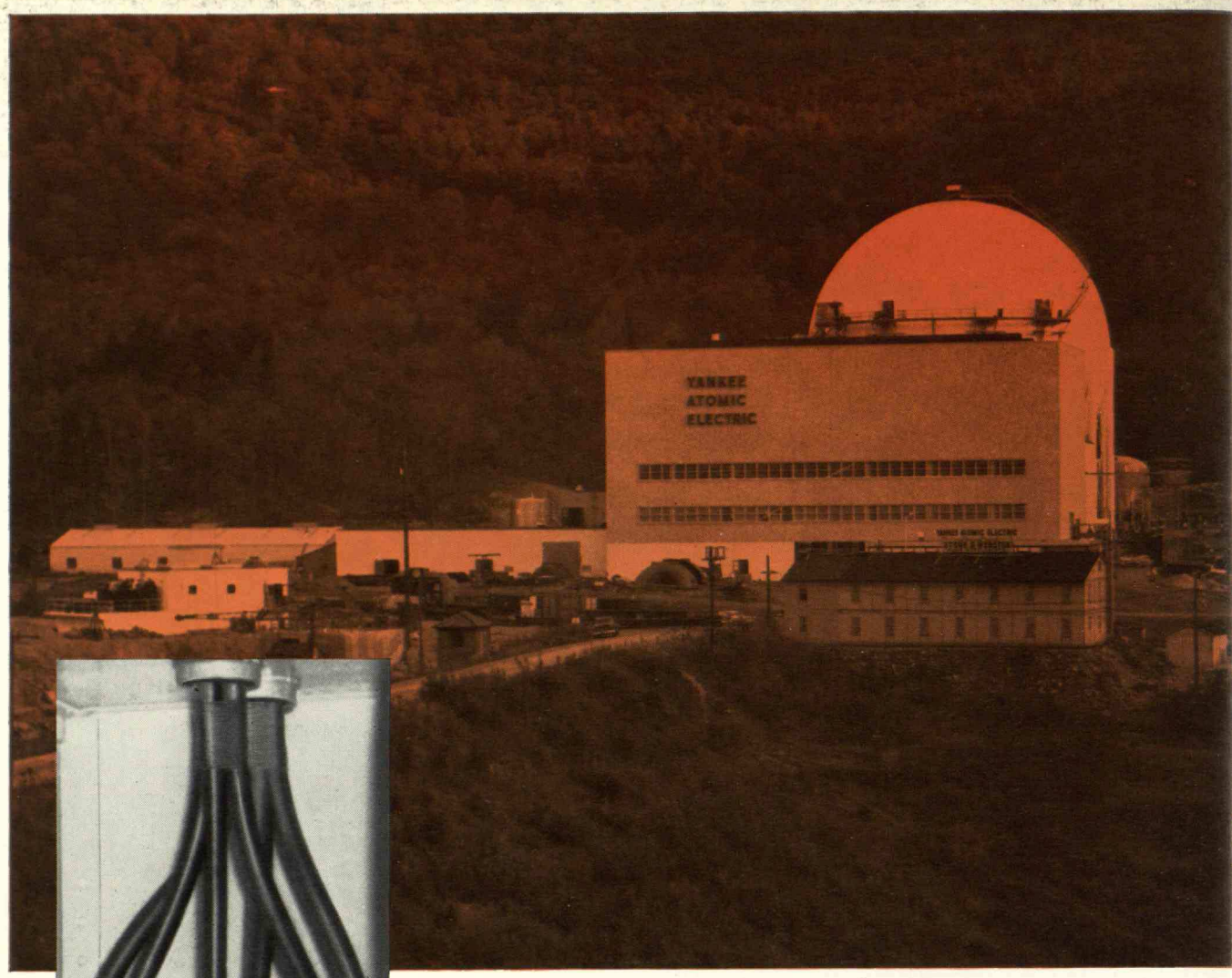

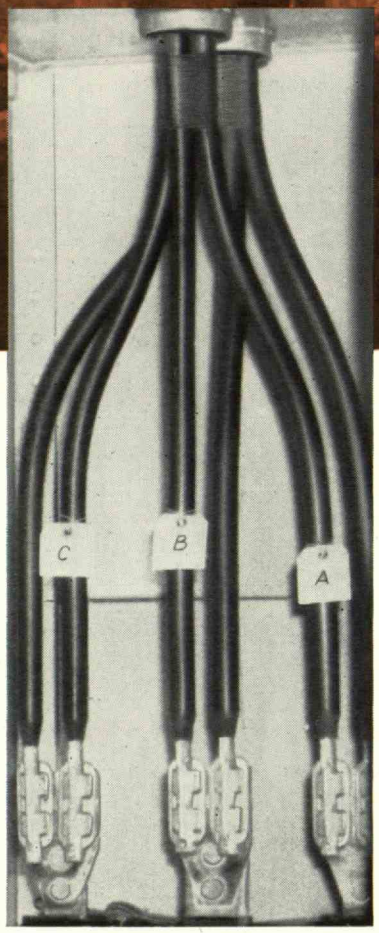

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. . . a quiz for Chemical Executives who want to keep posted

QUESTION 1. In 1959, 28 plants in the United States were producing ethylene—the hydrocarbon intermediate which is way ahead of all others both in quantity produced and in versatility. What was the estimated total U. S. capacity for this valuable chemical in 1959?

a ——— 3.7 Billion Pounds

b ——— 4.9 Billion Pounds

c ——— 5.6 Billion Pounds

d ——— 6.4 Billion Pounds

QUESTION 2. How many of the U. S. ethylene plants were designed, engineered and constructed by the Lummus Company?

	PLANTS	CAPACITY
a	3	.4 Billion lbs.
b	5	.6 Billion lbs.
c	7	.8 Billion lbs.
d	9	1.0 Billion lbs.

ANSWERS: 1. *The answer is (c)—5.6 billion pounds, according to* Chemical Week's *Report on Ethylene, May 9, 1959.*

2. *Again the answer is (c). In the last 10 years Lummus has 7 Ethylene plants to its credit in the U. S. alone with a combined capacity of .8 billion lbs. Lummus' world-wide total is 18, with a combined capacity of over a billion pounds per year. For ethylene projects, or any type of process plant, call on Lummus' 50 years of experience in design, engineering and construction.*

Technology Review

Reg. U.S. Pat. Off.

Volume 62, Number 7 *Edited at the Massachusetts Institute of Technology* *May, 1960*

Feedback

More About Procedures In Mathematics Classes

FROM MALVIN J. MAYER, '33:

Professor Franklin's letter in the March issue was valuable in that it presented sound warnings against any trend to minimize the importance of classical discoveries. It was also of particular interest to me as a parent who has been involved with P.T.A. groups studying new techniques in education.

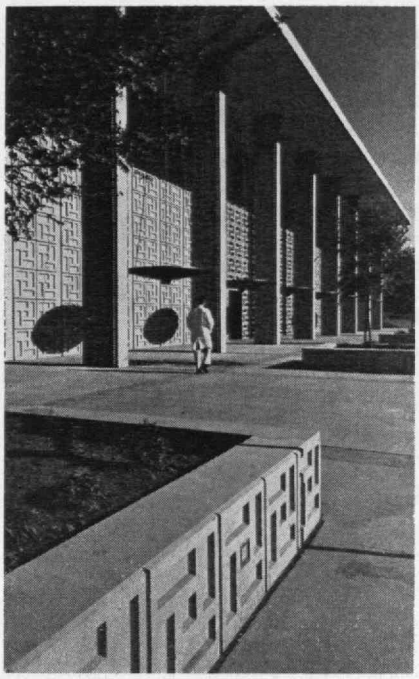
The phrasing used seems to imply, if not specifically state, that some of the new procedures used for obtaining an early understanding of mathematics *necessitate* a permanent change in language and notation. Perhaps those who have introduced these courses make the same error, but I hope not. The underlying principle, I think, is that algebra is a language. You may have seen the advertisement in the March *Scientific American* quoting Lavoisier on this subject. He said, "Algebra is a real language: Like all languages it has its representative signs, its methods, its grammar – ."

If we wish to have students understand that any mathematical notation is simply an expression of a language, then we must give them the deeper understanding that, as in all languages, the same physical object, or even abstract idea, may be expressed in different ways. For example, we may say "Dada," "Daddy," or "Father," but we mean the same thing. . . .

Just as I believe that children in the first, second, and third grades should begin to learn a foreign language so that they may have the deeper uderstanding that our language is merely *one* means of communication among mankind, so I believe that the "new" notation will give a better comprehension of mathematical principles and philosophies at an early age.

While one should not draw generalities from an individual personal experience, some eight years ago in a parent's efforts to provide his child with this better comprehension of the mathematical language, I found that the substitution of squares, triangles, and symbols for *X*, *Y*, and *Z* provided my oldest daughter with a better understanding of algebra. This is particularly true of the square which, by its very form, permits an easy visualization of the building of certain problems. This is not to imply that the square is a substitute for

(Continued on page 48)



CURRENT TASTES of Edward D. Stone, '27 who presents "The Case for Modern Architecture on the Campus" (on page 27 this month), are represented by the new medical school and hospital (above) that he designed for Stanford University.

EDITOR: Volta Torrey; BUSINESS MANAGER: R. T. Jope,'28; CIRCULATION MANAGER: D. P. Severance,'38; EDITORIAL ASSOCIATES: J. J. Rowlands, Francis E. Wylie, John I. Mattill; EDITORIAL STAFF: Ruth King, Diana de Filippi, Norma G. Humphries; BUSINESS STAFF: Madeline R. McCormick, Louise E. Ryan; PUBLISHER: H. E. Lobdell,'17.

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This Month

The Cover

A more colorful view of air than the cover picture indicates now intrigues scientists using the Naval Supersonic Laboratory's wind tunnel at M.I.T. How the air flow has been made visible is reported on page 20.

Next Month

The Review will report the views of Vannevar Bush, '16, Honorary Chairman of the M.I.T. Corporation, regarding research in space.

Individuals Noteworthy

New Posts

NAMED in the news recently were the Alumni whose elections, promotions, and appointments are recorded below:

Robert J. King, '03, as Chairman of the Trustees, Piedmont College . . . *Ray P. Dinsmore, '14,* as a Director, Goodyear Tire and Rubber Company . . . *Vertrees Young, '16,* as a Life Trustee, Trinity College . . . *James W. Gibson, '20,* as Assistant Treasurer, John Hancock Mutual Life Insurance Company;

Augustus B. Kinzel, '21, and *Cecil Boling, '32,* respectively, as President and as Vice-president, Engineers Joint Council . . . *Henry Flynn, '23,* as General Manager, Refining Department, Texaco, Inc.;

George Y. Anderson, Jr., '24, as a Director, Bucyrus-Erie Co. . . . *John T. Blake, '24,* as Senior Vice-president and a Director, Simplex Wire & Cable Company . . . *Charles A. Thomas, '24,* as Chairman, Monsanto Chemical Company;

Ralph F. Gow, '25, as a Director, United Fruit Company . . . *Daniel J. O'Connell, '29,* as a Trustee, American International College . . . *Hermon H. Scott, '30,* as Chairman of the Board, Institute of High Fidelity Manufacturers;

Herbert L. Wampner, '30, as a Director, Reichhold Chemicals, Inc. . . . *Claude F. Machen, 31,* as a Director, Boston Gas Company . . . *Donald B. Sinclair, '31,* as Executive Vice-president, General Radio Company;

Frederick V. Murphy, Jr., '33, as a Director, Attleboro Electric Company . . . *George S. Trimble, Jr., '36,* and *Albert C. Hall, '37,* as Vice-presidents, respectively, for Advanced Programs and of Engineering, The Martin Company;

Charles M. Edwards, '40, as Assistant General Manager, Bendix Aviation Corporation . . . *David B. Nichinson, '42,* as President, Kollsman Instrument Corporation . . . *Colonel Richard C. Gibson, '42,* as Professor and Head, Department of Astronautics, Air Force Academy;

Neil M. Blair, '47, Vice-president, Intelex Systems, Inc. . . . *Robert S. McClintock, Jr., '48,* as President, National Can Corporation . . . *Albert V. Shortell, Jr., '50,* as Vice-president, Wolf Research and Development Corporation, Boston.

Honors

MEDALISTS and recent recipients of other distinctions include:

Karel J. Bossart, '27, the Sylvanus Albert Reed Award, by the Institute of the Aeronautical Sciences . . . *Lt. Col. Alvah E. Perkins, '30,* the Commendation Medal, by the U. S. Air Force . . . *Franklin K. Pittman, '41,* named as one of the top 10 Career Men in the Federal Government for 1960, by the National Civil Service League;

Elias J. Corey, Jr., '48, and *Charles D. Coryell,* Professor of Chemistry, respectively, the $1,000 Award in Pure Chemistry and the $1,000 Award for Nuclear Applications in Chemistry, by the American Chemical Society;

Astra Zarina-Haner, '55, the Rome Prize Fellowship in Architecture, by the American Academy in Rome . . . *Peter S. Eagleson, '56,* the Desmond Fitzgerald Medal, by the Boston Society of Civil Engineers . . . *Egon Orowan,* Professor of Mechanical Engineering, the Bingham Medal Award, by the Society of Rheology.

Faculty Notes

KURT S. LION, Associate Professor of Applied Biophysics, will attend the fifth international Instruments and Measurements Conference, at the Royal Institute of Technology in Stockholm next September. The meeting is being sponsored by the Royal Swedish Academy of Engineering Sciences and the Swedish Association of Technical Physicists.

Virgilio Barco-Vargas, '43, Minister of Public Works of Colombia, receiving the Great Cross of the Order of Vasco Nuñez de Balboa from Victor C. Urrutia, Minister of Public Works of Panama. Dr. Vargas also recently was awarded the Great Cross of the National Order of Merit by Ecuador.

Jerome B. Wiesner, Acting Head of the Department of Electrical Engineering, and Jerrold R. Zacharias, Professor of Physics, will participate in an international conference on Science in the Advancement of New States at the Weizmann Institute of Science in Israel next August.

James M. Austin, '41, Associate Professor of Meteorology, Dr. Pauline M. Austin, '42, and others from M.I.T. participated in the Weather Radar Conference in San Francisco in April.

Attorney from Alaska

A SLOAN FELLOW now in the M.I.T. School of Industrial Management, Howard W. Pollock, of Anchorage, Alaska, has been admitted to practice before the U. S. Supreme Court.

Mr. Pollock is a disabled veteran of World War II, who went to Anchorage from New Orleans in 1947. He was chairman of the statehood committee in the territorial legislature, and was named as one of the nation's outstanding young men in 1955.

(Continued on page 6)

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Individuals Noteworthy

(Continued from page 4)

James Murray: 1902-1960

THE DEPARTMENT of Civil and Sanitary Engineering lost James A. Murray, Associate Professor of Materials, when he died on March 5 after an operation.

Professor Murray was born in Cambridge on August 23, 1902, and was graduated from Harvard University in 1924. In 1926 he joined the staff of the National Bureau of Standards and was chief of the Lime and Gypsum Section, before becoming associated with the Warner Company of Philadelphia in 1930 as Director of Research. He joined the M.I.T. Faculty in 1948 to take charge of research on cementitious materials and masonry units. He was chairman of the committee on lime for the American Society for Testing Materials and a member of the American Institute of Chemical Engineers and the American Chemical Society. An active Mason, he was Past Master of Thompson Lodge in Malvern, Pa., and Past High Priest of the Montgomery Chapter, RA-262, in Ardmore, Pa.

Surviving him are his wife, Mrs. Rhoda Jelley Murray; two children, Donald W. and Judith L. Murray, and three brothers, Stanley S. and William K. Murray of Lexington and Allan F. Murray of Bedford.

Liaison Officer

RICHARD B. FINN, JR., '54, became an Industrial Liaison Officer for M.I.T. on March 1. Mr. Finn joined the Electrical Research Department of the American Electric Power Service Corporation when graduated from Course VI-A, and later went to the Oak Ridge School of Reactor Technology and worked with the Nuclear Power Study Group of Commonwealth Edison Company and the East Central Nuclear Group of American Electric Power Service Corporation. He participated in these assignments in the preliminary design, development, and pre-operational testing of power reactors for the public utility industry. He was also joint author of a paper presented before the American Institute of Electrical Engineers in 1957.

(Concluded on page 12)

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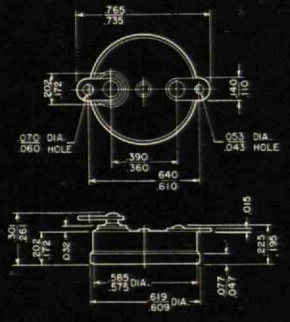

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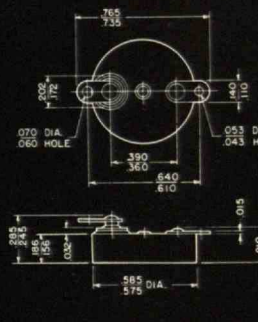

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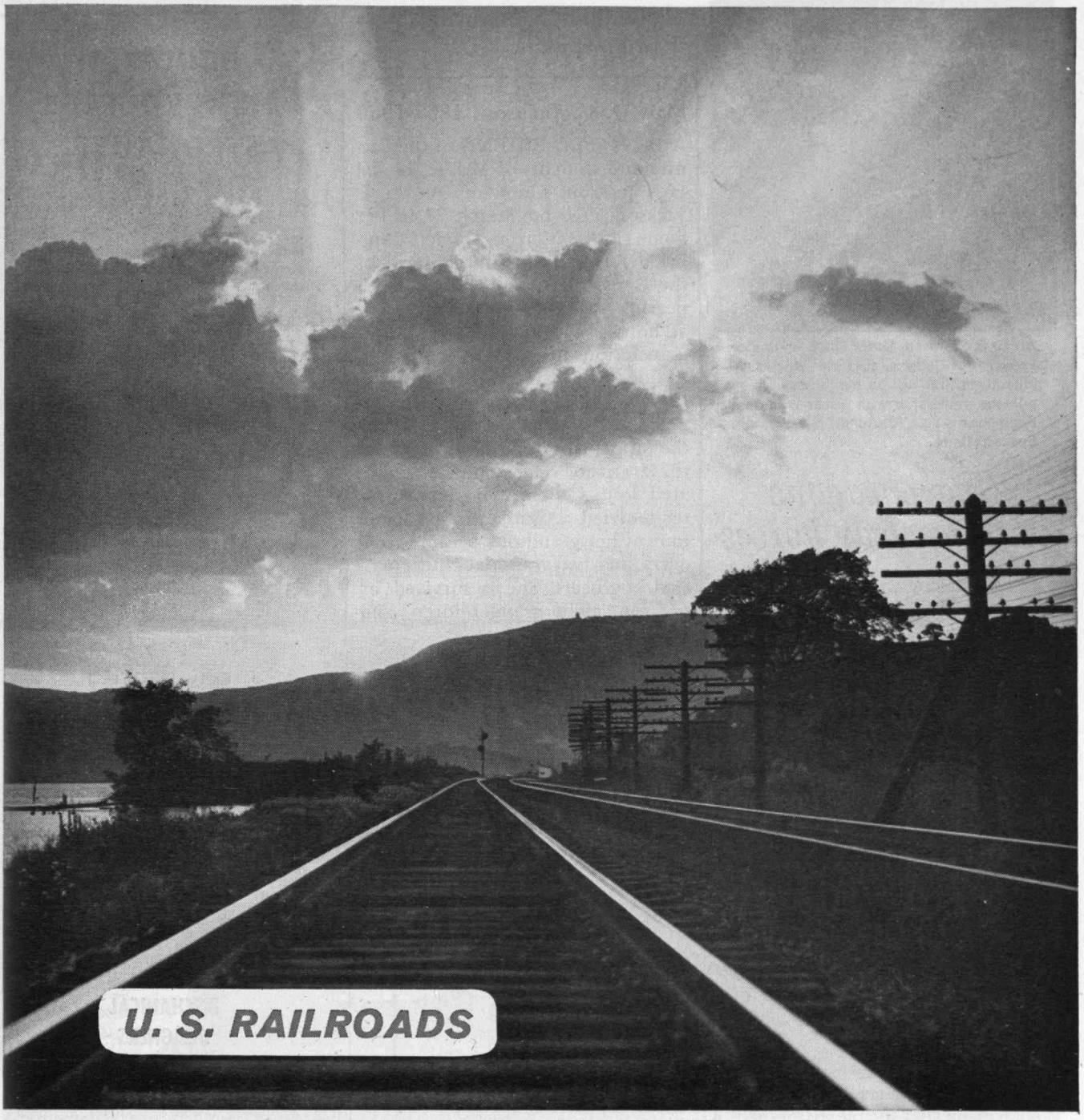

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Individuals Noteworthy

(Concluded from page 6)

Mrs. D. C. Jackson: 1867-1960

A DEVOTED FRIEND of the Faculty and students of M.I.T., Mabel Foss Jackson, widow of Dugald C. Jackson, died on March 27 in her home at 5 Mercer Circle, Cambridge. Her husband was head of the Department of Electrical Engineering for 28 years and was elected an honorary member of the Alumni Association in 1939. A native of Maine, who attended Penn State, Mrs. Jackson made her home a place of friendship and counsel for the students, Alumni, and staff of the Institute. Her son was graduated from Course VIA, her daughter married a Course VI graduate, four of her grandsons became engineers, and two granddaughters married engineers. She is survived by her son, eight grandchildren, and 17 great grandchildren.

Charles Bumer: 1897-1960

THE CHAIRMAN of the Mathematics Department at Clark University, Charles T. Bumer, died on March 14. He was a staff member of the Radiation Laboratory at M.I.T., and a staff consultant of the M.I.T. Instrumentation Laboratory, before going to Clark in 1948.

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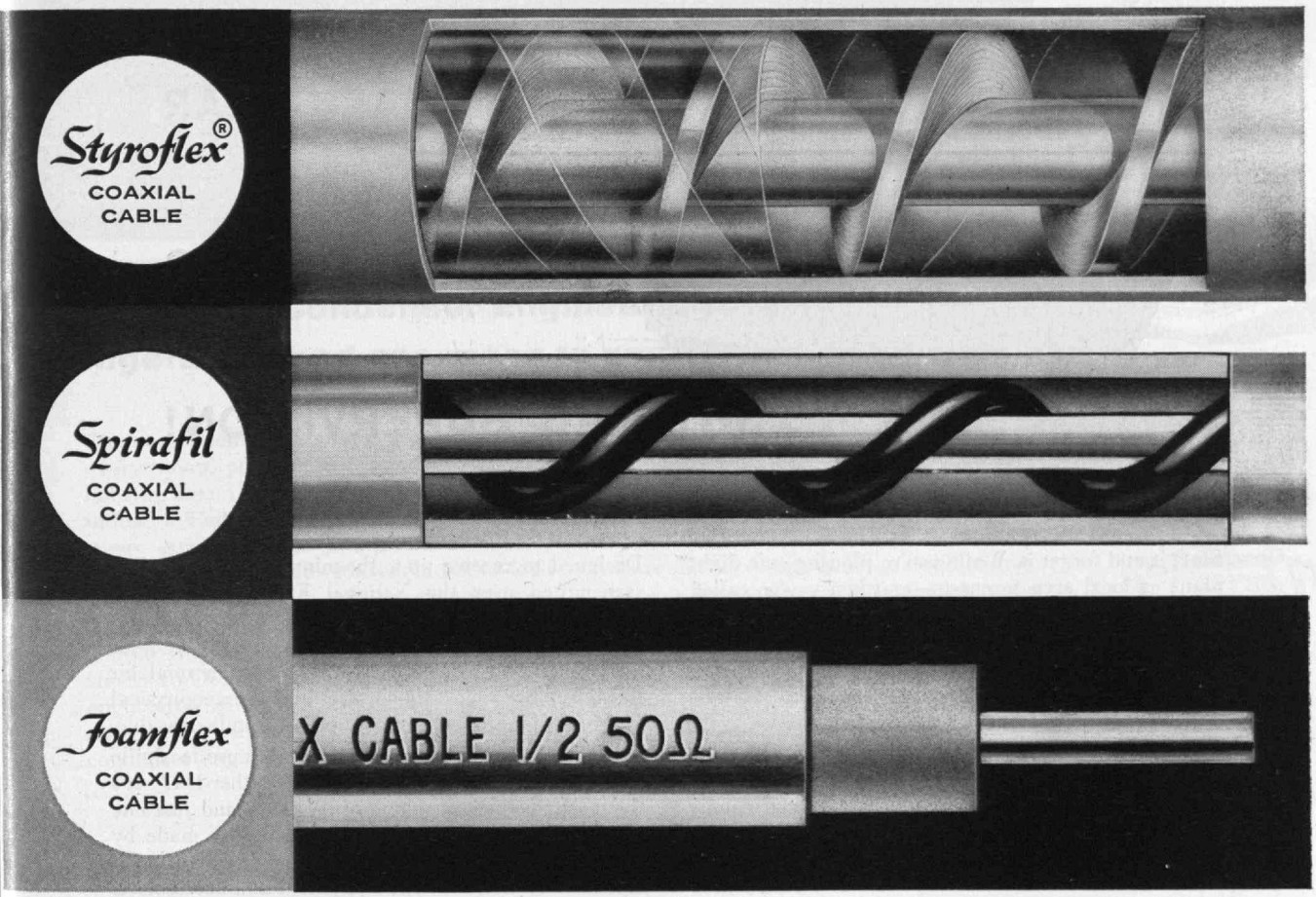

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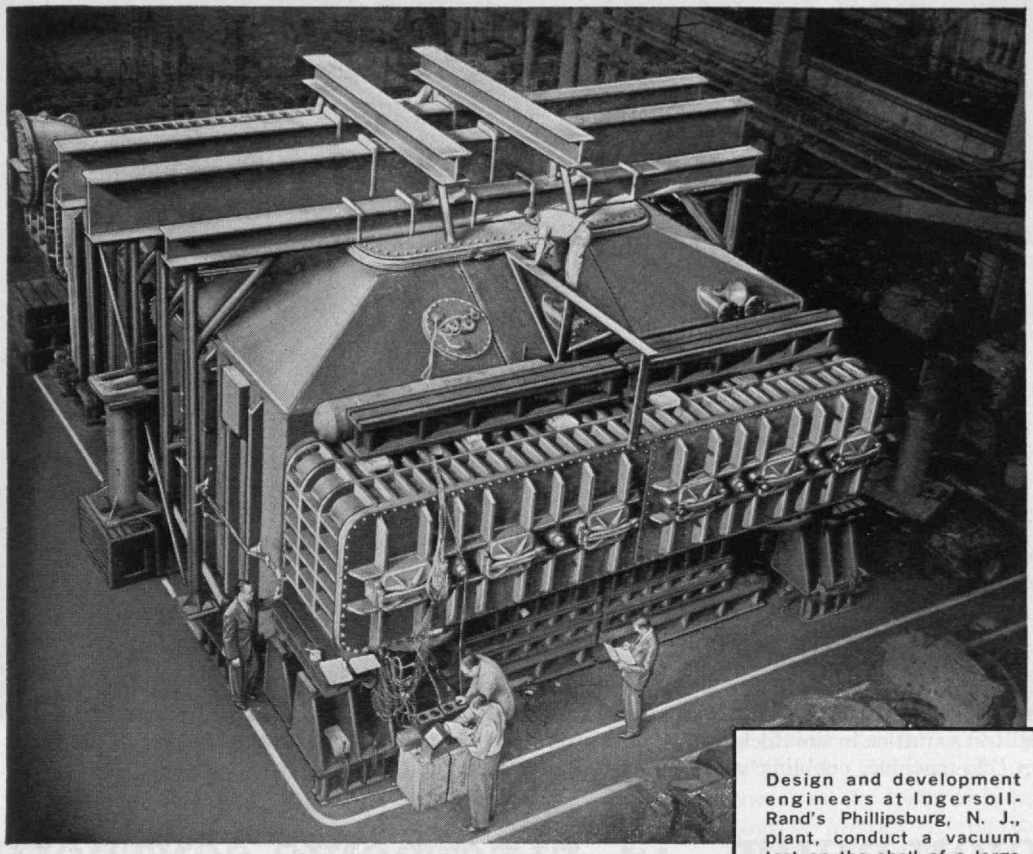

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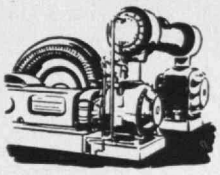

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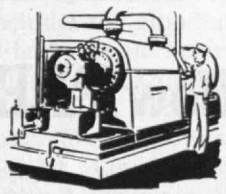

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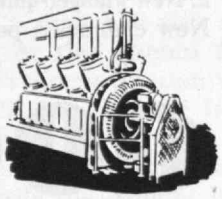

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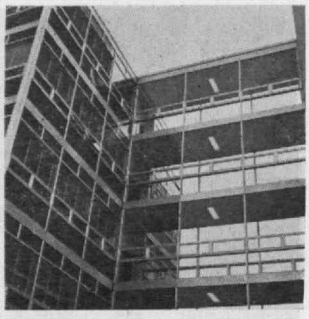
L. C. Hopton, 1926, *President;* J. Bentley, 1925, *Vice-President.*

Trend Of Affairs



M.I.T. Receives Pledge For Women's Dormitory

THANKS to an anonymous pledge of $1,500,000, President Julius A. Stratton, '23, announced in April, M.I.T. soon will have an on-campus dormitory to accommodate from 120 to 150 women students. It will be built on a site facing the Charles River close to the Chapel and the Kresge Auditorium.

The Institute has admitted women almost since it was founded, but they always have been outnumbered greatly by the men. Of 6,200 students now, 155 are women. Institute housing is available for less than a third of these women, and some of this housing is on the Boston side of the Charles at a considerable distance from the school.

"The enrollment of freshman girls at M.I.T.," Dr. Stratton said, "has been necessarily limited to the accommodations available under the direct supervision of the Institute. Yet there has been a steady rise in the number of highly qualified women applicants at M.I.T. over the last several years. Happily, the timely and generous dormitory pledge which the Institute has now received will remove some of the limitations on the enrollment of women and on the kind of extracurricular program we can provide for them.

"Women have made substantial contributions to scientific and technical progress in the past and today there are more opportunities for girls in the scientific professions than ever before. Indeed, women's potential for achievements in these fields represents one of the great underdeveloped resources of the country.

"M.I.T. believes that a strong residential program, designed to enhance the education of students, is a sound objective. This magnificent pledge to the Institute now affords us an unprecedented opportunity to meet this objective for our women students and to improve their residential and social environment. It is a means also to advance the professional development of our women students."

The first M.I.T. coed was Ellen H. Swallow, '73, who became the wife of Professor Robert H. Richards, '68, served as lecturer in chemistry at the Institute, and won international renown as an authority on food and sanitary chemistry. A survey a few years ago indicated that a woman who has studied at M.I.T. is likely to be a scientist, married to a scientist, to belong to professional societies, and to be active in community affairs.

The Commencement Exercises

THE INSTITUTE'S 1960 commencement address will be given by Edwin H. Land, Institute Professor (Visiting) and President of the Polaroid Corporation. The exercises are to be at 10:30 A.M. on Friday, June 10, in the Rockwell Cage, and the graduates and their families will be greeted afterwards at the President's luncheon, to be held in the Great Court if weather permits. The baccalaureate service for the Class of 1960, preceding the commencement exercises, will be at 3 P.M. on Thursday, June 9. Huston Smith, Professor of Philosophy, will speak at this service.

Dr. Land, the commencement speaker, was the first fellow appointed to the School for Advanced Study at M.I.T. He is the inventor of the Land camera and his recent studies of color vision have been widely acclaimed. The list of honors which have been bestowed on Dr. Land is long: It includes the Hood and Progress Medals of the Royal Photographic Society, the Cresson and Potts Medals of the Franklin Institute, the Holly Medal of the American Society of Mechanical Engineers, the National Modern Pioneer Award of the National Association of Manufacturers, the Rumford Medal of the American Academy of Arts and Sciences, the Duddell Medal of the Physical Society of Great Britain, the Progress Medal of the Society of Photographic Engineers, and the F. W. Brehm Memorial Lecture Medal. He also has received honorary degrees from Tufts, the Polytechnic Institute of Brooklyn, Bates, Colby, Harvard, and Northeastern.

Dr. Land was president of the American Academy of Arts and Sciences in 1951-1953, and is a member of the National Academy of Sciences; a fellow of the Royal Photographic Society of Great Britain, the Royal Microscopical Society, and the Optical Society of America; and a member of the Advisory Board of the Hoover Institute and Library.

The Alumni Day Program

MONDAY, June 13, will be Alumni Day at M.I.T. In the forenoon, Alumni will have a chance to visit and inspect departmental facilities. At the Alumni Day Luncheon in the Great Court, President Stratton will speak about the past year and the future of the Institute. A symposium on communications and the life sciences will be held in the afternoon, and a cocktail party on Briggs Field will precede the Alumni Banquet. A ballet performance with a 40-piece orchestra will be given in the auditorium after the banquet.

Molecular Biology

THE STUDY of collagen is approaching a third stage, in which the chances of discovering clinical applications of the findings to the problem of aging and the treatment of degenerative diseases are likely to be greater, Institute Professor Francis O. Schmitt recently told the post-doctoral fellows in the M.I.T. School for Advanced Study.

First, the internal organization of this marvelous and essential tissue had to be learned. Its molecules now have been isolated, seen under the electron microscope, taken apart, and reversibly recombined and characterized physico-chemically. The second stage of this work, in which Dr. Schmitt has been a leader for many years, has involved the study of interactions between these molecules. Now the subtle, positive and negative feed-back control mechanisms, which seemingly enable them to unite automatically — like bricks capable of laying themselves in appropriate patterns — at the right times and places in the body are being sought.

Collagen consists of long macromolecules, containing helically coiled polypeptide chains, which normally connect themselves at their ends to form fibers. Now, in the third stage of a long and difficult research program, the researchers who have learned this are looking for the enzymes and cofactors which regulate fibrogenesis and are trying to explain the processes by which the growth of collagen is directed.

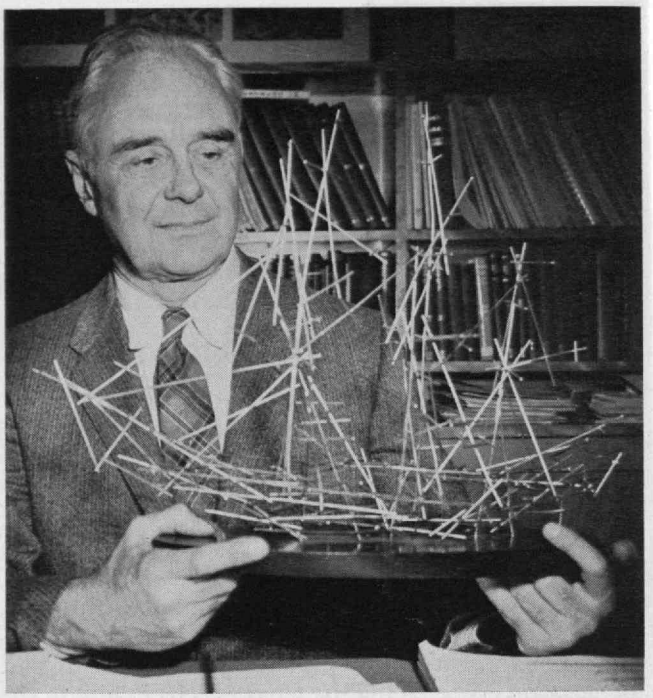
Knowledge acquired and techniques devised in a wide range of academic disciplines are needed in this as in the earlier efforts to understand molecular biology. It is a research field, Dr. Schmitt reported, in which scientists of other countries are very energetic — and also one which M.I.T. is in a fortunate position to exploit.

Seven of the men on the roster of the School for Advanced Study this year are Sloan Foreign Postdoctoral Fellows. Professor Schmitt spoke at one of a series of dinners arranged for the men in this School by its director, Institute Professor Martin J. Buerger, '24. At previous dinners, they have heard Professor I. Fankuchen of the Department of Physics at the Brooklyn Polytechnic Institute discuss crystallography and Professor Patrick M. Hurley, '40 speak on the growth of radiogenic nuclides and early earth history.

Tracking Pioneer V

WHEN A Thor-Able rocket rose from Cape Canaveral at 0800 on March 11, a world-wide network of tracking stations went into instant operation to flash the news of Pioneer V, the most distinguished of U. S. deep space probes to date. As usual, Lincoln Laboratory's Millstone Hill station was in the vanguard, operating in this instance not as a two-way radar but as a radio telescope, to receive radio signals sent out from the space vehicle. Over-all direction of the whole launching and tracking operation was in charge of the National Aeronautics and Space Administration, and Space Technology Laboratories in Los Angeles was the nerve center of the network.

First to acquire the target, transmitting loud and clear, was an NASA Minitrack station at Blossom Point, Md. Seconds later, at 0805, earth's newest offspring rose over Millstone's horizon, right on schedule and almost exactly on the predicted course. Millstone tracked the transmitter as it passed out of sight from Cape Canaveral at 0812 and heard it picked up by Jodrell Bank in England at 0815. Meanwhile, data were being transmitted in real time, just as they were received, from Millstone to STL, providing the earliest assurance that all was going well. Five more transmissions were observed successfully that day, before the probe set over Millstone's horizon. The tracking crew then suspended operations and left subsequent communications in the hands of the three stations (at Hawaii, Jodrell Bank, and Goldstone, Calif.) which turn the radio on and off by remote control. The probe was on its way, and there was satisfaction and pride in playing a key role in such a significant and successful step deeper into space.



THIS "FLYING DUTCHMAN" is one of about 50 pieces of wire sculpture produced by Professor C. Fayette Taylor, '29, of the M.I.T. Department of Mechanical Engineering. Its gold-plated brass rods are silver-soldered together. It will be exhibited at the Rockport Art Festival this summer.

Lindgren Memorial Fund

FORMER STUDENTS and colleagues of Waldemar Lindgren are establishing a fund in his memory to be used for scholarship aid, to support student thesis research, and to build up a collection of books regarding his life and works. Professor Lindgren came to M.I.T. on a full-time appointment in 1912, and served for many years as William Barton Rogers Professor of Economic Geology and head of the Department of Geology.

Former President Herbert Hoover, who assisted him during college summer vacations beginning in 1893, has written that: "Dr. Lindgren's work contributed enormously not only to science but also to the discovery and development of our natural resources. . . . It is fitting that his memory should be marked by a scholarship at M.I.T. I will be glad to contribute."

New Alloys Suggest Greater Uses of Ice

ICE AND SNOW are "the most plentiful and so far the least useful" substances on earth. Can they be used as large-scale building materials in some parts of the world? As found in nature they seldom have the properties required for modern construction. But in Building 20, the birthplace of many innovations, M.I.T. now has an Ice Research Laboratory. Here, in a test chamber that can be kept at 40 degrees below zero, a group of parka-clad researchers headed by W. David Kingery, '48, Associate Professor of Ceramics in the Department of Metallurgy, is studying ways of improving ice. In a few years, Dr. Kingery believes, engineers will be using ice and snow as construction materials, as a result of this and other research in "applied glaciology."

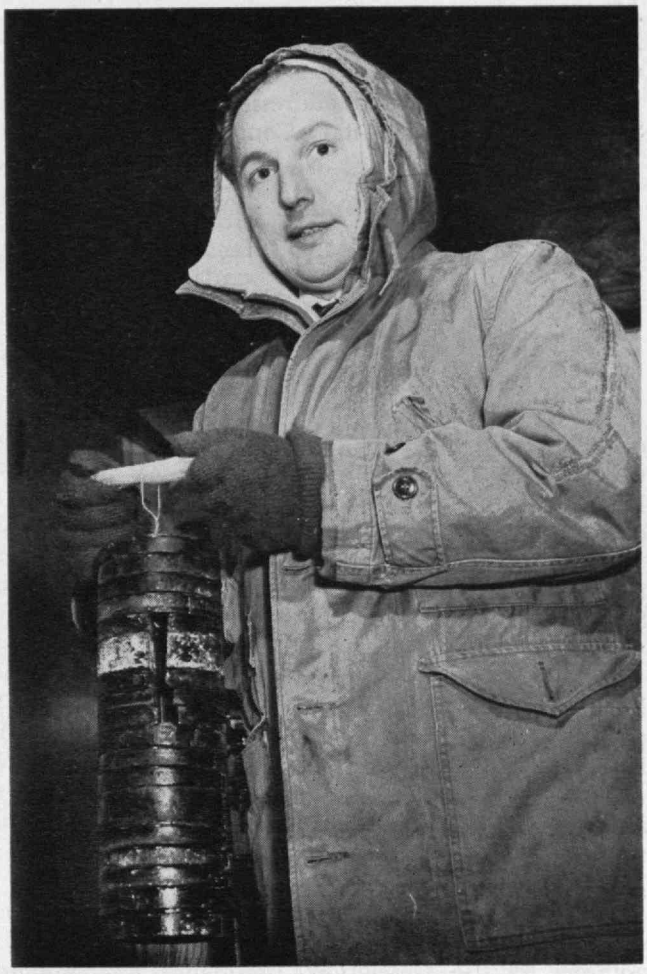
"The basis for the new studies," he explains, "is that 10 per cent of the earth's surface is covered by ice and snow. The snow-covered areas and the oceans are the two great terrestrial frontiers which have not been fully explored; in some minds they offer much more hope for exploitation than does outer space. But development of the earth's cold regions can only be achieved when the local environment, including ice and snow, is positively used rather than passively fought.

"Ice and snow have been used as construction materials by residents of cold climates for a long time. Applications have included snow houses, ice logging roads, ice bridges, and ice storage areas. In all these, however, the requirements as to structural properties are not stringent, and the applications have been limited to the use of natural, unimproved material. Extensive progress also has been made in the excavation of tunnels and rooms in glacial ice and snow, particularly by the U.S. Army Snow, Ice, and Permafrost Research Establishment. But the opportunities and usefulness for this kind of construction are obviously limited."

The research now under way is aimed toward the development of processing methods which will permit much more than "stone age" activity. By solidification, mining, and comminution (pulverizing) of natural ice and snow, the incorporation of strengthening agents, and new costruction methods, stronger and more useful ice structures may be made possible.

The M.I.T. Ice Research Laboratory has grown out of studies in which Dr. Kingery has been engaged for the Arctic Institute of North America. This winter he spent three weeks supervising its field program at Point Barrow, Alaska, where the use of alcohol and other lubricating agents to enable ice grains to form dense structures is being studied.

Ice alloys, he reports, appear to be one of the most promising avenues of research, but studies of them have been limited. When the British, during World War II, considered building a 2,000,000-ton aircraft carrier out of ice, it was found that the addition of about 15 per cent of sawdust more than tripled the tensile strength of ice. Other alloys have since been developed. Ice that contains as little as 4 per cent by volume of Fiberglas, Dr. Kingery says, has been found to be 10 times stronger than natural ice; this alloy, in other words, has a tensile strength of 2,000 pounds per square inch, whereas that of natural ice is only 200 pounds per square inch.



A stick of ice will hold a 40-pound weight — if you add a small amount of Fiberglas to it. Demonstrating this is W. David Kingery, '48, in the M.I.T. Ice Research Laboratory. Alloys of ice, Professor Kingery believes, may increase its usefulness as construction material.

To land modern aircraft now, thicknesses of 50 inches of fresh ice, and up to 74 inches of sea ice, are regarded as necessary in some cases. Development of new ice alloys could substantially reduce these requirements for safe landing places.

The M.I.T. laboratory, which is equipped to measure ice strength, study stresses, and determine solidification characteristics, is sponsored by the Air Force Cambridge Research Center (AFCRC). It co-operates with the Arctic Research Laboratory at Point Barrow, the Climatic Laboratory at Eglin Air Force Base, Eglin, Fla.; and the Ellesmere Ice Shelf Project of the AFCRC.

Professor Kingery has been a pioneer in the development of physical ceramics and is widely known as an authority on high-temperature technology. His associates in these new studies include: Clyde M. Adams, Jr., '49, Associate Professor of Metallurgy; Nicholas J. Grant, '44, Professor of Metallurgy; and Philip L. deBruyn, '52, Associate Professor of Mineral Engineering.

Impressions of the World

AT THE Alumni Council's March meeting, James R. Killian, Jr., '26, described his recent trip around the world.

In London, Dr. Killian addressed a luncheon of the Scientific and Parliamentary Committee, attended by 400 persons, including 170 Members of Parliament, and found himself wishing afterwards that the United States had a counterpart of this committee.

In India, he visited the M.I.T. office and observed firsthand the work of the Center for International Studies and the Indian program of the Ford Foundation. Here, as everywhere else, he saw abundant evidence of the activities of Alumni.

In Australia, he observed some of the "extraordinarily effective" work of the CSIRO (Commonwealth Scientific and Industrial Research Organization), and visited four universities.

In Istanbul, Beirut, and the many other cities where he stopped briefly, he was impressed both by the impact of M.I.T. on the world and the growing interest in scientific and technological education.

His total flying time was 62 hours and 40 minutes, and his average speed aloft 406.3 miles per hour, and the only major delay occurred on the New York-to-Boston leg of the trip.

Edward J. Hanley, '24, President of the Alumni Association, presided and Clarence L. A. Wynd, '27, nominee for the Association's presidency, was among the guests whom Mr. Hanley introduced.

Patience and Persistence

ONE OF 15 studies for the Senate Committee on Foreign Relations by private research organizations and institutions was completed this spring by the M.I.T. Center for International Studies. It dealt with economic, social, and political change in the underdeveloped countries, and its implications for U.S. policy.

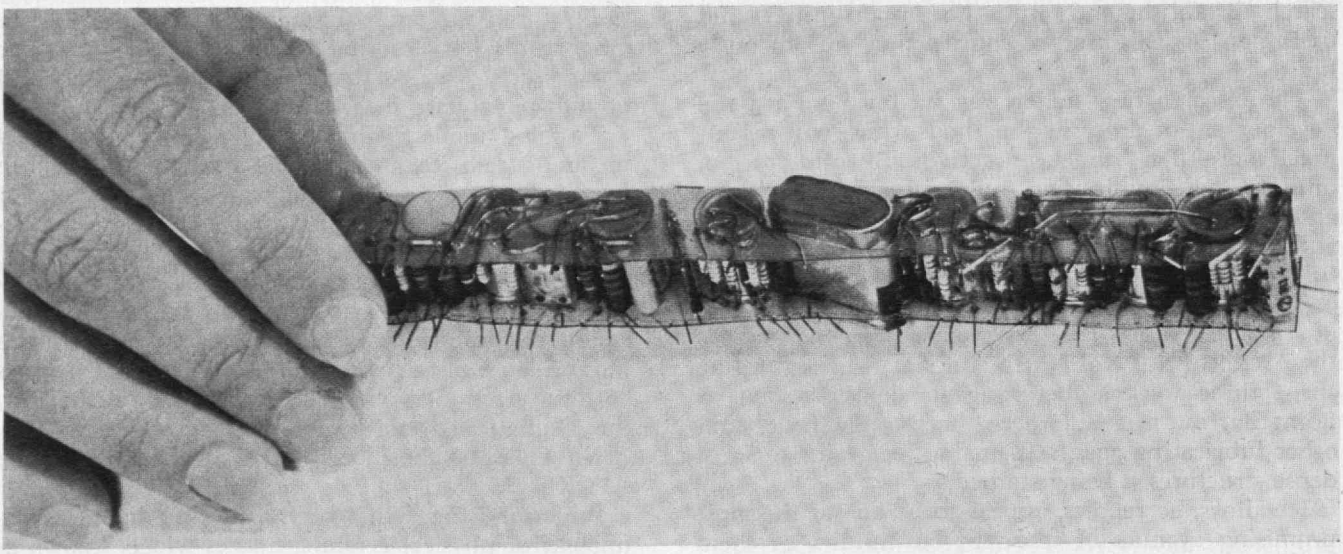
Senator J. W. Fulbright, chairman of the committee, released it to the press with the observation that it points out quite clearly the forces which must be fully understood to make foreign policy serve our nation, and "stresses the importance of utilizing the economic instruments which we have available for the purpose of bringing about orderly transitions in the underdeveloped societies."

Excerpts to which he called particular attention included recommendations that American policy "be characterized by a patience and persistence which have not always been its trade-mark."

Seeing the Air Rush By

AT THE M.I.T. Naval Supersonic Laboratory, where hypersonic velocities now have been achieved, a new technique has been developed for making the airflow in the vicinity of a model placed in the tunnel visible to the naked eye.

For years wind tunnel operators have used schlieren systems for this purpose, but at the extremely low pressures and densities associated with hypersonic flow there are not enough air molecules for good schlieren observations. The new NSL technique places two negatively charged probes in the air stream, a trifle closer to the model than to any other part of the tunnel, all of which is a positive electrical ground. As the voltage is increased to around 1,100 volts in these probes, there is a reaction with the excited hypersonic air in the tunnel and the flow patterns become visible in strange, brilliant oranges and blues. The mechanism that produces these effects it not yet clearly understood. This mechanism, nevertheless, makes flow phenomena visible that had been postulated theoretically although never verified experimentally before.



A COMPUTER with a density of 56,000 components per cubic foot won honors for Eldon C. Hall, '53, an engineer in the M.I.T. Instrumentation Laboratory, and Samuel A. Francis, '49, at a Miniaturization Award dinner in New York this spring. Pictured here is one of the 54 modules of the complete miniature digital computer that they developed for a control application. It is only one-fourth the size and one-half the weight of previous comparable computers, and has led to major changes in the design and objectives of an important weapon system program.

(THE TREND OF AFFAIRS *is concluded on page 42*)

M.I.T.'s Humanities Course

It offers students an exciting and exacting opportunity to relate professional knowledge to their society's culture

BY ROY LAMSON

ROY LAMSON, Professor of Literature at M.I.T., attended Cambridge High and Latin School and received his A.B., A.M., and Ph.D. from Harvard, where he was an instructor for three years. He came to M.I.T. from Williams College, where he was Professor of English and Dean of Freshmen. He was in the War Department's Public Relations Bureau and Historical Division during World War II, and was historian of Supreme Headquarters Allied Powers in Europe.

AT A social gathering in Boston when I came to M.I.T. in 1957, I was asked what I was teaching.

"English," was the reply.

"I'm glad," said the questioner, "that those scientists and engineers are learning to speak and write."

His attitude betrayed a too common misunderstanding of the Institute. The subjects taught in liberal arts colleges never have been disdained here, and the alleged "illiteracy" of science and engineering students is a myth. Instruction in the humanities and social sciences has been given at M.I.T. for many years, and today one-fifth of every student's time is devoted to the study of literature, history, philosophy, music, visual arts, or the social sciences. This is a requirement amounting to the equivalent of at least one subject in the School of Humanities and Social Science (one of M.I.T.'s five schools) each semester for four years.

The reason for the requirement is not that a student shall have a little frosting to his scientific or technological cake but that he have some serious start in relating his knowledge of science and engineering to the problems of life in the past, the present, and, indeed, the future. It asks that every student look at the meaning of his professional study through other disciplines, through the arts, through history and philosophy, and through the social sciences.

In social studies, and especially economics, M.I.T. has a strong tradition. Some 13 years ago, Course XIV was developed to enable M.I.T. students to combine basic training in engineering or science with the social sciences. To carry out this program today, the Department of Economics and Social Science, which has sections for economics, political science, industrial relations, and psychology, offers courses leading to the B.S. in Economics, Politics, and Engineering (XIV-A) and in Economics, Politics, and Science (XIV-B), and to master's and doctor's degrees in these fields.

The Origin of the Course

A few years ago the Institute went even further in providing opportunities for study of the humanities by introducing a new program leading to bachelor's degrees in Humanities and Science or in Humanities and Engineering. Seventy students now are enrolled in this program, known within the Institute as Course XXI.

The reasons given by the Committee on Undergraduate Policy for establishing this course were:

1) The increasing social and industrial responsibilities of technically trained men.

2) The increasing number of M.I.T. graduates whose careers soon lead them away from strictly technical or scientific activities to administrative and executive responsibilities.

3) The increasing recognition — here and elsewhere — of the need for a broad education at the undergraduate level for prospective specialists as well as nonspecialists.

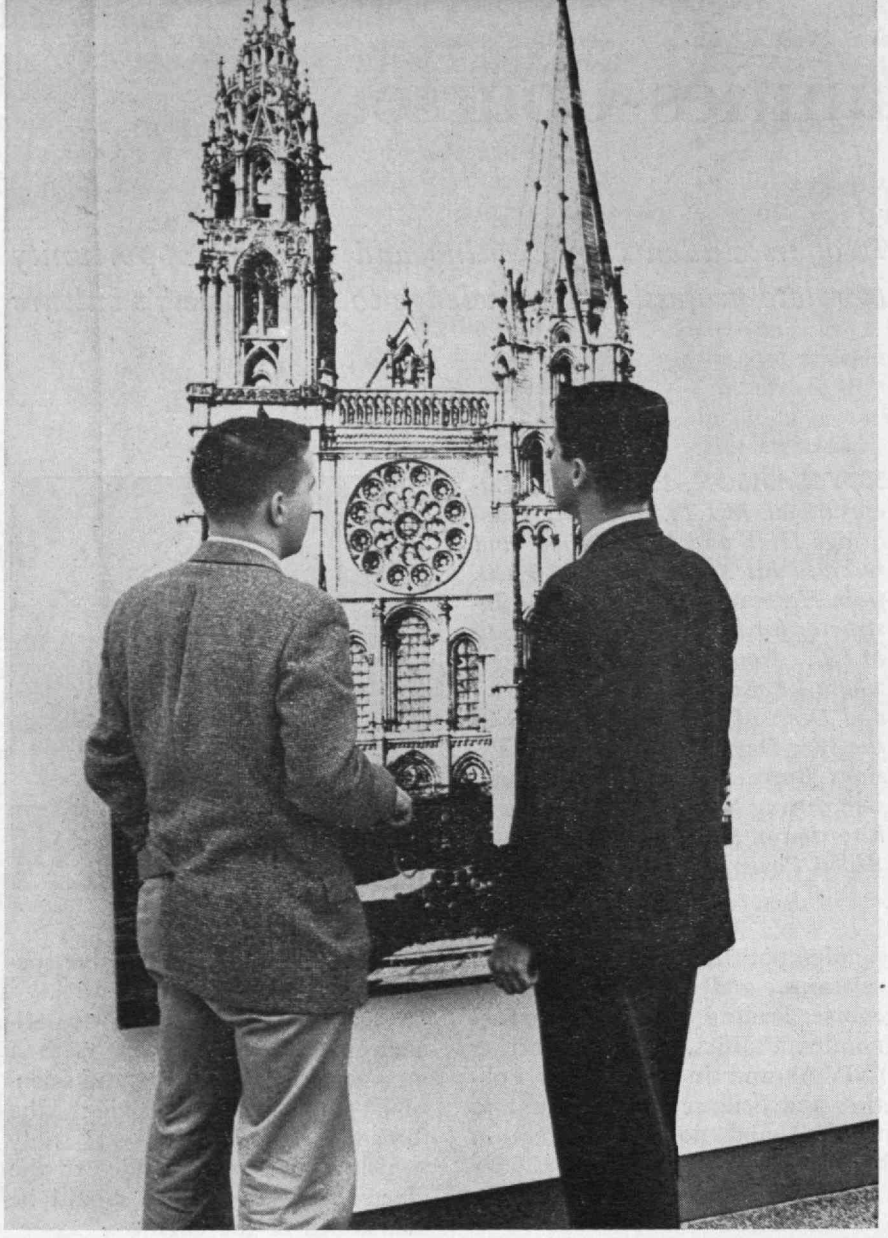
4) The desirability of experimenting on a small scale with a new type of engineering and scientific education to provide "the broad foundation of liberal study which is already demanded of the doctor and lawyer and should be demanded of the engineer."

5) The conviction that under the rigorous standards characteristic of M.I.T., the holder of a degree from Course XXI could have a far more thorough grounding in science and technology than most students with baccalaureate degrees from liberal arts colleges.

Two Areas of Knowledge

Course XXI allows students to spend about half their time in a professional field — physics, chemistry, mathematics, or electrical engineering, for instance — and the rest in the humanities. The curriculum, with its strong emphasis on two areas of knowledge, is a double major, giving students an effective way to bring their interests in the humanities and in their chosen fields of science or engineering together.

The committee responsible for creating the course believed that



such a grounding has a large, perhaps indispensable, meaning for many men involved in decision-making in our industrial society. Viewed simply as a terminal course of study such a curriculum should provide an admirable preparation for nonprofessional life. At the same time, it should be excellent for those intending to study medicine, law, education, business or public administration, and for graduate work in several fields of the humanities. Its relation to graduate work in science and engineering goes without saying.

Students in the first two years of the new course follow the regular M.I.T. curriculum in physics, mathematics, chemistry, and the required "core" course *Introduction to the Humanities,* an amalgam of literature, history, and philosophy, in which one studies Greece, the Middle Ages, and the Renaissance in the first year, and the Enlightenment and the Nineteenth Century in the second year. Given their choice in their junior and senior years of choosing a program in philosophy and literature or in American industrial society, the first class of sophomores surprised the staff by choosing the philosophy and literature option, eight to one.

A Liberal Choice

But there is no typical program in Course XXI. Because of its flexibility, it offers a wide variety of combinations of study including science, engineering, philosophy, history, literature, visual arts, music, psychology, and the social sciences. The full value of this program must be seen by the student through an understanding of his own aims, with the help of his teachers and advisers.

If he wishes, a student may continue his work at M.I.T. a fifth year, and such a program will lead to a degree in his chosen scientific or engineering profession – either a second bachelor of science or, in some cases, a master of science.

The choice both within a sequence and in other elective subjects in humanities is liberal since the Department of Humanities offers more than 60 subjects in history, philosophy, literature, and music, taught by a distinguished Faculty. A student may elect sub-

jects in several areas of learning, such as literary criticism, the Bible, Shakespeare, the modern novel, American foreign policy, the Russian revolution, classical philosophy, metaphysics, the philosophy of science, symbolic logic, Twentieth Century music, or the string quartets of Beethoven. For properly qualified students, special study, either individual or in small groups, is available. In the Department of Modern Languages the student may choose to study French, German, or Russian — both language and literature — or topics closely associated with modern scientific methods in linguistics. Through the Department of Economics and Social Science, he may elect a variety of subjects in economics, political science, international relations, and psychology.

In his senior year each student participates in a humanities seminar in which he prepares through discussion and exercises for a thesis which can encompass his work in both science and the humanities. The senior may also pursue in the thesis any special, important line of interest he may have developed in the humanities. For this thesis the work is independent study under one or more Faculty supervisors chosen from the Institute, and it takes about one-third of the time of the senior year. It is equivalent to the honors program or tutorial or preceptorial in leading universities. For many students the senior thesis has been one of the most important experiences at M.I.T.

In subject matter and in breadth and depth of study, in fact, these theses have offered every Course XXI student an exacting intellectual experience. Subjects for theses have included:

A History of Quantum Physics.

The Influence of Newton on Literary Criticism in the Seventeenth Century.

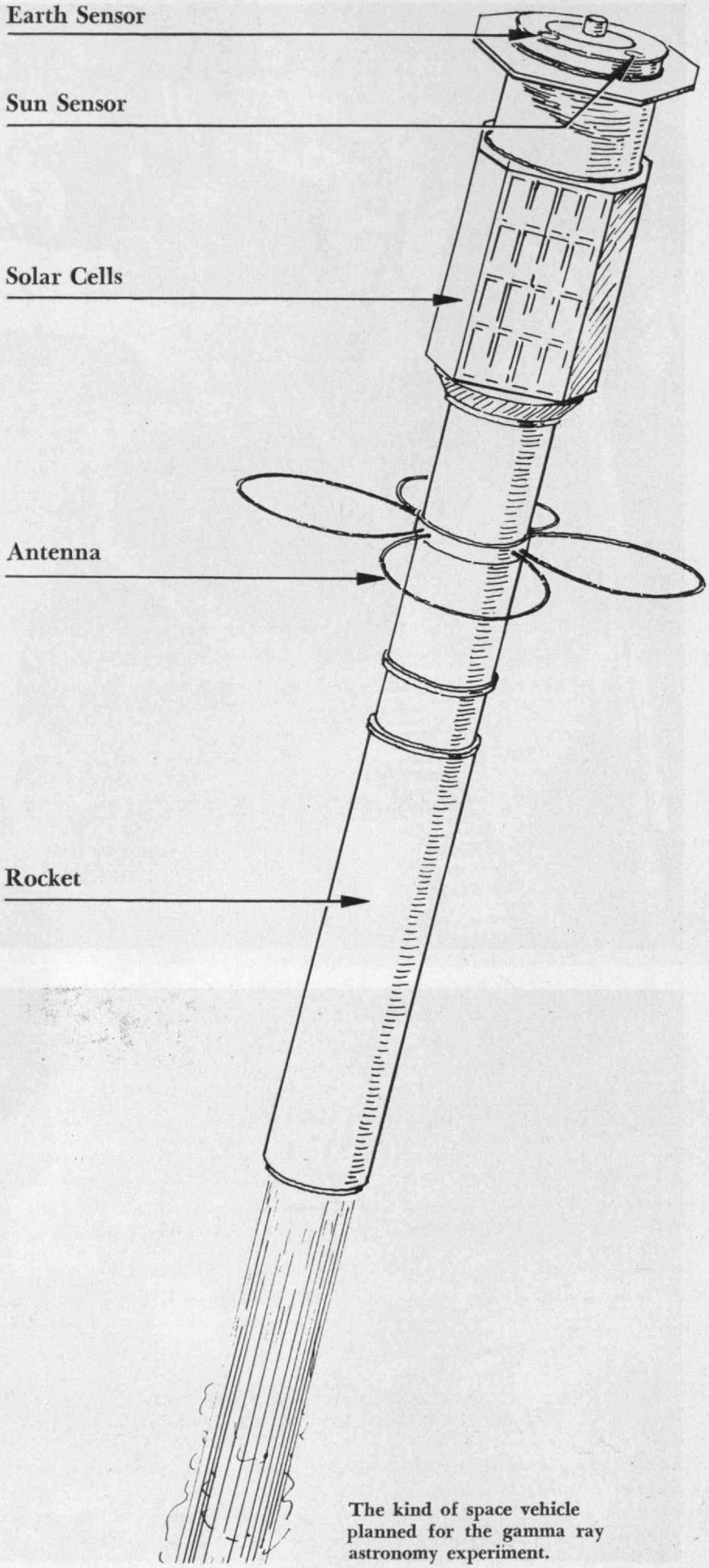
The Coalescence of Soap Bubbles (both a historical study and an experiment).

Shakespeare's Tempest *in the Seventeenth Century: The Impact of Scientific Thought.*

The Characteristics of Tense in the English Language.

Mechanical Translation of Chinese.

(Concluded on page 50)



The kind of space vehicle planned for the gamma ray astronomy experiment.

Two M.I.T. experiments are scheduled to be carried into space within a year in satellites which the National Aeronautics and Space Administration hopes to launch. One will be part of a search for a solar wind; the other part of a search for faint beams of gamma rays. The solar wind, if found, might help explain complex events within the solar system; the gamma ray beams, if found, might improve our mental picture of the Milky Way and other great galaxies of stars.

These experiments are not related, but both have been conceived in the Laboratory for Nuclear Science, both are efforts to grasp new opportunities created by the availability of great rockets and sophisticated instruments, and both are remindful of the experiment that Benjamin Franklin performed by flying a kite into a storm.

Since these are attempts to measure effects about which little is known, it will not be surprising if the apparatus has to be modified and the work repeated before significant data are obtained. To look for the solar wind, a new version of an old instrument has been designed; to look for the gamma ray beams, a new kind of telescope is being produced.

Both instruments, moreover, are expected to operate in difficult-to-attain environments: The solar wind will be sought throughout the region between the earth and the moon, and the gamma ray data in the shallower region between the earth and its newly discovered radiation belts. Putting vehicles into the required orbits, measuring phenomena which may be surprising, and getting the findings back to

Two M.I.T. Experiments in Space

Searches are planned for a solar wind and for gamma rays which might clarify our mental picture of the universe

earth, are certain to be difficult feats — but even failures may be enlightening.

The Solar Wind

Michael Faraday's scientific career has been likened to walking through a marvelous, unexplored forest "and stopping from time to time to lift up from the ground a dazzling flower or a brilliant jewel." A modern version of an instrument that bears his name, the Faraday Cup, will be used to try to find the density, the velocity, and the directional movement of the ionized particles that are believed to constitute a solar wind. This cup will be basically a collector plate, a few inches in diameter, beneath a series of grids. It is scheduled to be sent into a jungle that right now is as bewildering as the forest which Faraday trod.

Since charged particles as well as light from the sun reach our atmosphere, the sun's atmosphere is thought of now as a plasma that extends far out from the sun's apparent surface — so far out, in fact, that the earth and moon really are within this huge blob of plasma. At times solar flares seem to send out long tongues that do not reach the earth until hours after the disturbances to which they are ascribed have been observed by other means. There also is reason to believe now that streams of particles leave the sun almost continuously, but varying greatly in energy. This wind may both sway and be swayed by magnetic fields in space.

Compared to the earth's magnetic field, the magnetic phenomena rooted in the sun seem fantastic. Lines of force associated with solar disturbances are intermingled with the sun's general field — and the latter not only varies in intensity and distribution but also sometimes reverses its polarity. Particles leaving the sun may be tossed about and accelerated by these complex magnetic forces; and the particles themselves, in turn, may stretch out magnetic lines of force as if they were rubber bands.

The main part of the payload of the space vehicle to which the M.I.T. solar wind experiment has been assigned will be a group of magnetometers provided by the Goddard Space Flight Center. While they measure magnetic fields, if all goes well, the Faraday Cup will measure the particle flow.

Data regarding these related matters are being sought now for at least three reasons:

1) Interactions between the plasma that constitutes the sun's atmosphere and our planet's own atmosphere are important factors in meteorological phenomena, auroral displays, geomagnetic storms, and radiation belts. Hence, they interest weathermen, communication engineers, and prospective space travelers as well as physicists.

2) Since the electromagnetic processes in space are on a scale that cannot be duplicated on the earth's surface, observations of them may result in advances in magnetohydrodynamics. Such advances are needed in efforts to control and exploit thermonuclear reactions.

3) More certainty about what happens within our solar system would be helpful to the astronomers striving to envisage the wonders elsewhere in the universe and might contribute to the resolution of conflicting cosmological theories.

Most of what we know about the Milky Way and other great galaxies has been learned from starlight. Radio waves now are increasing that knowledge, and still more clues to the origin and structure of the cosmos may be within our reach.

Where We Stand

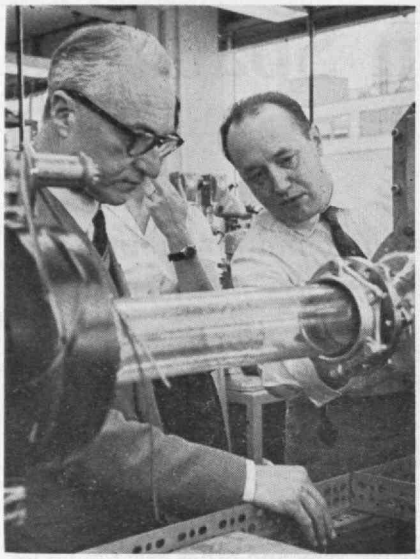
Clouds of dust and gas hang like veils between much of the universe and our optical and radio telescopes, but cosmic rays dart hither and thither through these veils. The study of cosmic rays made advances in physics possible before great particle accelerators were built on earth; but the immensity and the complexity of electromagnetic processes in space have frustrated efforts to discover where most cosmic rays originate. The study of the intensities of gamma rays which the physicists in the Laboratory for Nuclear Science now plan will be part of efforts

1) to learn more about the clouds of dust and gas, and

2) to determine the sources of cosmic rays.

Gamma rays are like smoke; they may indicate that something has happened. An atom that is hit by a cosmic ray flies apart. The parts include subnuclear particles which, in turn, pop apart — and leave gamma rays. Wherever there are enough wisps of matter and enough cosmic rays, there will be collisions that will produce gamma rays. And these rays are not charged. Hence they are not deflected, as cosmic rays are, by magnetic fields.

We envision the Milky Way now as a great, flat disk of far-flung stuff. Our little solar system is evidently



Prof. Bruno B. Rossi (left) and Herbert S. Bridge, '50, of the M.I.T. Laboratory for Nuclear Science.

The Faraday Cup to be used in the study of the interplanetary plasma will look like this, and be on the surface of a vehicle containing three magnetometers. It is scheduled to be put into orbit by a Thor Delta.

out toward this platter's edge. Consequently, if you could see gamma rays, you should see more of them when you looked toward the center of the galaxy, where there is a greater concentration of stuff, than when you looked up or down or to the right or left. But you might also detect faint beams of gamma rays coming from other dense masses farther away when you looked in the particular directions in which other galaxies have been seen.

A Computing Instrument

To find and, if possible, to measure the intensity of the gamma "smoke" coming from various directions, a gamma ray telescope has been devised. Several such telescopes are being assembled for a variety of tests now, and one of them is scheduled to be sent into space in a suitable satellite.

The M.I.T. gamma ray telescope will be a complex piece of apparatus which requires a great deal of auxiliary equipment. Hence no other experiments will be aboard the satellite that carries this one.

The telescope will be a tubular device consisting of three radiation detectors connected to a computer. At each end of the tube there will be a counting device, and around the whole tube there will be a polystyrene "shield" which also will serve as a counter. The computer will receive signals from all three counters, examine them, and record only the evidence of gamma rays.

When gamma rays strike a scintillation counter at one end of the tube they will be converted into positrons and electrons. These will be detected by a Cherenkov counter at the other end. Cosmic rays will bombard the telescope from all directions, meanwhile, but these will be detected by the shielding, and the computer will be able to subtract their effects from the total. Thus, it will record only the intensity of gamma rays.

For this experiment, of course, the computer must be kept informed regarding the direction in which the telescope is pointed while the gamma rays are being met and measured. It will receive this directional information from a solar sensor and an earth sensor alongside the scintillation counter at one end of the telescope.

To record its findings, a tape recorder will be connected to the computer; and to get the data back to earth, a radio transmitter will be part of the apparatus. A receiver also will be included, so that the computer can be given instructions.

The Orbit

At altitudes which balloons can reach, the gamma ray "smoke" is so dense that it is hard to identify faint differences in its intensity when you look in various directions. And at higher altitudes there is danger of running into a radiation belt, in which the density again would be so great that it would be hard to distinguish the part ascribable to collisions between cosmic rays and bits of matter far off in space. So an effort will be made to put the satellite that carries this gamma ray astronomy experiment into an orbit that will keep it above most of the atmosphere but below a radiation belt most of the time.

Only the part of the satellite that contains the telescope is being built at M.I.T. The whole vehicle will weigh about 80 pounds, and be a rod about seven feet long and a foot in diameter. Part of its exterior will be covered by solar cells to provide electrical power for the apparatus. And a substantial part of the rod will be a solid-fuel rocket.

NASA has provided the funds for both the solar wind and the gamma ray astronomy work at the Institute, and will have charge of the challenging task of hanging the hardware in space properly.

The Faraday Cup for the solar wind study has been designed by Herbert S. Bridge, '50, lecturer in Physics, and Frank Scherb, '53, of the DSR staff, with the help of Ervin F. Lyon, '59, of Lincoln Laboratory and C. Dilworth, a DSR visitor. The gamma ray telescope is being built under the direction of William L. Kraushaar, Associate Professor of Physics, and George W. Clark, '52, Assistant Professor of Physics. All are associated with the cosmic ray group led by Bruno B. Rossi, Professor of Physics.

The Case for Modern Architecture On the Campus

Educational institutions can provide good examples that will heighten appreciation of other fine plans

BY EDWARD D. STONE

ARCHITECTURE is not like millinery: we shouldn't change it just to be fashionable. Yet to me it is encouraging that most of our colleges and universities are changing to beautiful contemporary buildings, in place of the once popular "Collegiate Gothic" or the nondescript structures that we could label "Ugly American."

To use a much-bandied and abused word, the contemporary architect conscientiously tries to produce "functional" buildings. (Whether he succeeds or not is another question.) He tries to plan practically, so that his structures will be suitable to their proposed uses. He does not like to warp his buildings to meet some preconceived design idea.

This point of view is beginning to prevail on campuses in all sections of America, where formerly buildings were often constructed as "monuments" rather than as places where education was to take place, and where the architect was restricted by an accepted design style. Look at the designs for Brandeis University and those for Wayne State University in Detroit, and at the progressive campus done by Frank Lloyd Wright at Florida Southern College. Even campuses that we think of as "traditional" are no longer so. Yale, which has always had a Gothic tradition, now has modern buildings: a fine arts building and an ice-hockey rink. The University of Chicago, for which I am presently doing a continuing-education building, has seen fit to forget its Gothic tradition. The graduate school at Harvard, by Gropius, is a radical departure from that university's colonial traditions. I know of no campus where a rigid style commitment now prevails.

Photo by Reba Wilcoxon

Even Frank Lloyd Wright called Edward D. Stone, '27, "an architect of quality." The Museum of Modern Art in New York, the U.S. Embassy in New Delhi, and the American Pavilion at the Brussels World's Fair are some of the buildings which have made him internationally famous.

He has designed buildings for Stanford University, the University of Arkansas, the University of Chicago, and other schools. His present projects include the National Cultural Center in Washington, D.C., the International Trade Mart in New Orleans, a Tulsa Civic Center, the Huntington Hartford Museum in New York City, and the International College at Beirut.

As my colleague Walter Gropius has pointed out, we don't expect students to go about in period clothes – so why should we build college buildings in pseudo-period design? Like Mr. Gropius, I believe that students reflect their surroundings, and that the appearance and the feeling of one's surroundings make a great deal of difference. If our future architects and future citizens are educated in environments of beauty, perhaps they will go to bat for beauty later in life. (It is no secret that beauty is a scarce commodity in America, one of the few things we can't seem to afford in our land of abundance.)

Architecture, when well done, can create a mood and inspiration. It has done so through the ages. Religious buildings, for example, have inspired religious fervor in their congregations. So it is with a college building: here you can create an atmosphere which is conducive to study and to work, and which produces rapport between teacher and student.

Indeed, the mood may vary with the building. If you are working in a laboratory, you want that laboratory to be like a machine, beautifully equipped and immaculately finished. In a library you want something that gives you a relaxed feeling – an oak-paneled room, carpeting, comfortable chairs, good light, and even an open fireplace.

Even though I am heartily in favor of the encouragement of modern architecture on the American campus, I think that we architects have an obligation to blend the new with the old. This can be done in three principal ways.

First, is the matter of scale. When I say scale – it is an architectural

term—I mean size and proportion. If a campus is made up predominantly of three-story buildings that are, let us say, 100 to 200 feet long, then the new buildings should be relatively the same size.

The second thing to consider is the material that is used, and the color. If a campus was started in a material such as brick or stone, then if possible the same material should be used for the modern buildings. If not the same material, then certainly a harmonizing color can be used.

The third great unifying force is the grouping or arrangement of the buildings. Fortunately, many colleges were started on the quadrangle plan — an ideal grouping for educational buildings. The quadrangle is in effect an outdoor room that unifies a group of buildings, even though they may differ individually in architectural design.

A History of Taste

Of this kind of planning, the best example I know is Harvard. Harvard has adhered to the quadrangle idea; it has used, by and large, the red brick of the original buildings; but it has changed the style as tastes have changed. There are buildings in the Harvard Yard by Richardson in the Romanesque style; there are buildings in the classical revival style by McKim, Mead, and White; there are even Victorian buildings. But because they are placed around quadrangles, towered over by gigantic elms, they are harmonious.

It is highly desirable for a college campus, which is to last hundreds of years, to report the changing tastes of the times. If we look to Oxford and Cambridge, we see a record of this changing history of architecture; yet they are so planned and unified by size, materials, and arrangement that everything ties together. And that's my preference, rather than to saddle the architect and the institution with a preconceived idea of style.

In designing the medical school and hospital at Stanford — which represents my own current tastes and prejudices, if you will — I tried very hard to meet the conditions of blending the new with the old. The site was adjacent to an old quadrangle of low, three-story buildings designed by Shepley, Rutan, and Coolidge, in the tradition of Richardson. I felt that I was working in very distinguished company and that my building should be sympathetic with its predecessors. As a result I made a horizontal hospital—a low three-story building — which is rather unusual for a 400-bed hospital in this day. All the rooms are directly related to landscaped gardens, which in turn are tied in with the beautiful landscaping and fine live oak trees on the 7000-acre campus.

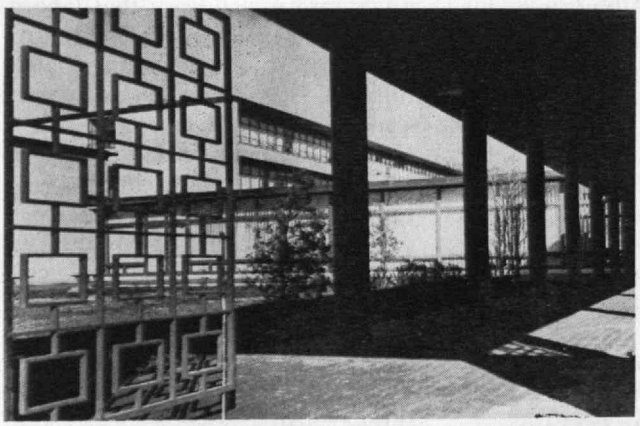
Because of the earthquake problem in that area of California, we thought it desirable to use poured concrete. To make the concrete texture sympathetic with the rough stone of the earlier buildings, and to lend an air of permanence as well, I hit upon the idea of putting within the forms a geometric pattern. This was done by nailing wooden blocks in the forms and then pouring in the concrete, much as you would pour dough into a waffle iron. The result, I believe, is beautiful and exciting — and I hope I have caught the essence of the older buildings, without either copying or ignoring them.

Capturing the Spirit

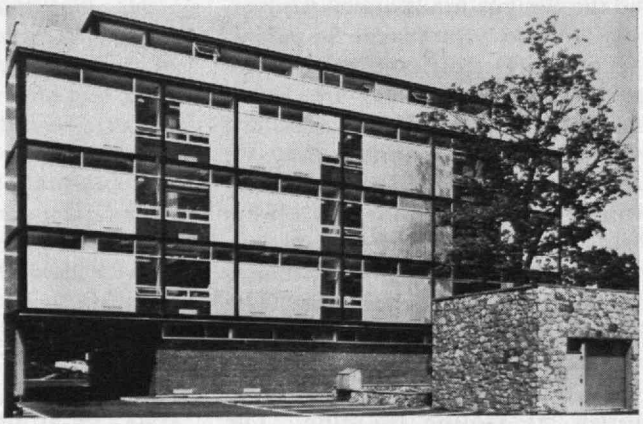
Using surrounding buildings as a point of departure, I find that I can ask myself: What makes this building unique from all others? If I can find the salient characteristic, I believe there is a much greater chance of doing an original, creative work. In other words, if I am working on a campus that is predominantly red-brick colonial, I try to create something original and contemporary, but which retains some of the qualities that made the colonial structure attractive — capturing the spirit, you might say.

Although my tastes in architectural design have changed since 1950, I have always been happy with the fine arts center at the University of Arkansas. Here is a unique college building, with all the arts — theater, music, painting and sculpture, architecture — under one roof, capturing the spirit of art and serving as an inspiring educational institution.

I have also been concerned with the question of uniqueness of function in designing the center for continuing education at the University of Chicago, to be completed in 1961. Behind it is the theory — and it is a very reassuring one to a man of my age — that one doesn't stop learning. To provide a place where men can return to the campus to live and work in a highly intensive manner for a limited period, I have



The Fine Arts Center at the University of Arkansas still pleases the author although his tastes have changed.



The Friedland Science Laboratory at Brandeis University was designed by Shepley, Bulfinch, Richardson and Abbott.

combined a classroom building, a hotel, and a conference-room building in a simple, unified, rectangular plan.

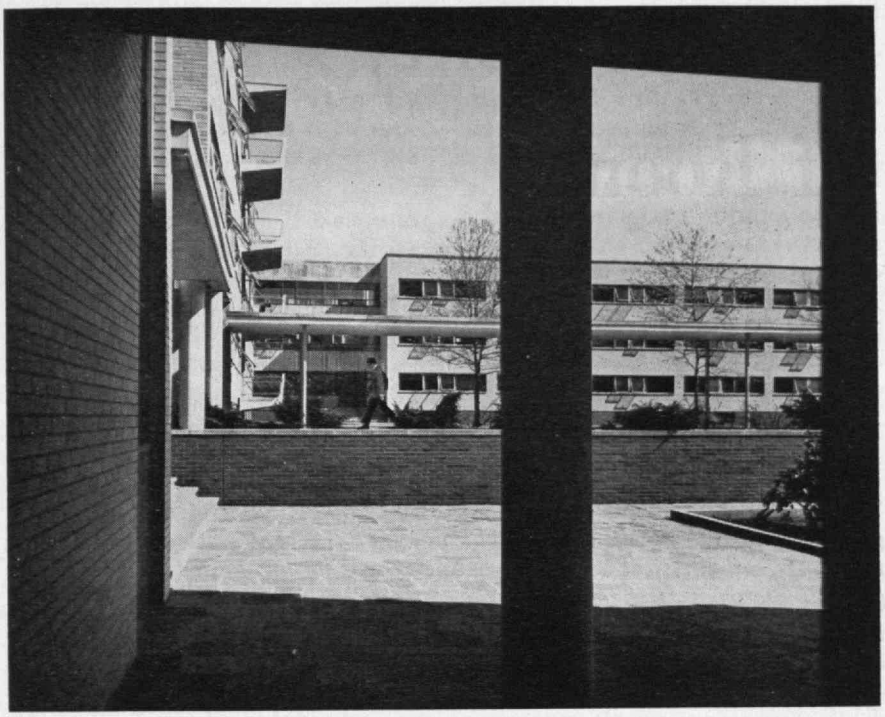
Too often, I am afraid, contemporary architects use the excuse of "functionalism" to indulge their current enthusiams. We are all guilty of enthusiams, of course. To some architects redwood is God's greatest gift to man. To others, plate glass has a place today that Pentelic marble did in the time of the Greeks. Steel in tension holds another architect's world together. I am not given to flexing my structural muscles in public and am content to hobble along on the old post and beam. All of these points of view are healthy, but they should not become standardized and arbitrary — on the college campus or anywhere else.

If members of the boards of college trustees are apprehensive at the mention of using "modern" design at their institutions, it is because they have seen some horrible examples of architecture passing under that label. I am willing to admit that the standards of contemporary architecture in this country are not as high as they might be.

In a country with some 177 million people, there are only about 22,000 architects. Obviously their efforts cannot even approximate the needs for building and rebuilding in the United States. Also, of the approximately $60 billion spent each year on construction, less than one third is for buildings designed by architects. It is a strange paradox that designing and planning are the most important (and the least expensive) part of any project, yet are not considered indispensable.

By and large, universities offering training in architecture fulfill their mission very successfully, arousing enthusiasm and a love of architecture in their students. But since the demand for architects' services is not high, they are beset by the temptation to compromise good design in favor of economic survival. How many college buildings are not what the architect intended but a composite of what boards of trustees, administrators, faculty members, and legislators demanded!

Then, too, the architects themselves are not always capable of good design. They may be too hot in their pursuit of novelty. We unnecessarily complicate our buildings in an effort to do something different, so that the results are too self-conscious, too full of effort to be new and world-shaking. Restraint is important in art as well as in living.



Harvard has adhered to the quadrangle idea, but changed the style as tastes have changed. This is Harvard's new Graduate Center.

What Colleges Can Do

A related fault is the hasty acceptance of the fashionable, so that we have the "glass box" copied everywhere — like a new bonnet the ladies are wearing this season. Obviously the glass building is not suitable to some climates and locations, particularly where there are extreme temperatures. Also, I happen to believe that the glass box fails to fulfill a fundamental need within the heart of man, some inner need for enrichment and embellishment of his surroundings — what I have facetiously called "moxie." I do not mean decoration for its own sake, but the psychological satisfaction that comes, for example, from the pattern of light and shade.

All of these abuses have understandably made some of our colleges leery of embarking upon the "modern" course of campus architecture.

Fortunately, the colleges themselves can help correct these conditions. How? By teaching our cultural heritage, and by themselves serving as examples of what long-range planning can mean in architecture.

One of the functions of education is to teach us the appreciation of and the *uses* of the past. If one knows about the history of architecture, he will also know that modern architecture is adolescent. We have been working on this for only about thirty years. The Greeks produced the Parthenon — which is, after all, a simple building — after 300 years of working with the problem.

With so many rapidly changing conditions of construction — such as air conditioning, new kinds of heating, and the development of the aluminum or glass curtain wall — the architect today has many more chances to go wrong than did the Greek builder. We simply have not yet mastered the fabulous vocabulary with which we have to work. The educated man knows the best of the past, and he knows that he should not be premature in judging the work of the present.

It is part of the obligation of an educational institution to bring to all students this knowledge of the arts and their relationships, no matter what the specialization. When Winston Churchill lectured at M.I.T., he said that he was grati-

(Concluded on page 44)

There's Plenty Of Room At the Bottom

BY RICHARD P. FEYNMAN

This is part of a talk given by Richard P. Feynman, '39, Professor of Physics at the California Institute of Technology, at a recent Caltech meeting of the American Physical Society. Fortune *magazine has hailed Dr. Feynman (who is pictured at the right) as one of our country's most distinguished physicists. The full text of this invitation to enter an exciting new field of study was published in the February, 1960, issue of* Science and Engineering, *the California Institute of Technology's alumni magazine.*

WHAT I want to talk about is the problem of manipulating and controlling things on a small scale.

As soon as I mention this, people tell me about miniaturization, and how far it has progressed today. They tell me about electric motors that are the size of the nail on your finger. And there is a device on the market, they tell me, by which you can write the Lord's Prayer on the head of a pin. But that's nothing; that's the most primitive, halting step in the direction I intend to discuss. It is a staggeringly small world that is below. In the year 2000, when they look back at this age, they will wonder why it was not until the year 1960 that anybody began seriously to move in this direction.

Why cannot we write the entire 24 volumes of the Encyclopaedia Brittanica *on the head of a pin?*

Let's see what would be involved. The head of a pin is a sixteenth of an inch across. If you magnify it by 25,000 diameters, the area of the head of the pin is then equal to the area of all the pages of the *Encyclopaedia Brittanica.* Therefore, all it is necessary to do is to reduce in size all the writing in the encyclopaedia by 25,000 times. Is that possible? The resolving power of the eye is about 1/120th of an inch — that is roughly the diameter of one of the little dots on the fine halftone reproductions in the encyclopaedia. This, when you demagnify it by 25,000 times, is still 80 angstroms in diameter — 32 atoms across, in an ordinary metal. In other words, one of those dots still would contain in its area 1,000 atoms. So, each dot can easily be adjusted in size as required by the photoengraving, and there is no question that there is enough room on the head of a pin to put all of the *Encyclopaedia Brittanica.*

Furthermore, it can be read if it is so written. Let's imagine that it is written in raised letters of metal; that is, where the black is in the encyclopaedia, we have raised letters of metal that are actually 1/25,000 of their ordinary size. How would we read it?

We Can Read Small

If we had something written in such a way, we could read it using techniques in common use today. (They will undoubtedly find a better way when we do actually have it written, but to make my point conservatively I shall just take techniques we know today.) We would press the metal into a plastic material and make a mold of it, then peel the plastic off very carefully, evaporate silica into the plastic to get a very thin film, then shadow it by evaporating gold at an angle against the silica so that all the little letters would appear clearly, dissolve the plastic away from the silica film, and then look through it with an electron microscope!

The next question is: How do we *write* it? We have no standard technique to do this now. But let me argue that it is not as difficult as it first appears to be. We can reverse the lenses of the electron microscope in order to demagnify as well as magnify. A source of ions, sent through the microscope lenses in reverse, could be focused to a very small spot. We could write with that spot like we write in a TV cathode-ray oscilloscope, by going across in lines, and having an adjustment which determines the amount of material which is going to be deposited as we scan in lines.

This method might be very slow because of space charge limitations. There will be more rapid methods. We could first make, perhaps by some photo process, a screen which has holes in it in the form of the letters. Then we would strike an arc behind the holes and draw metallic ions through the holes; then we could again use our system of lenses and make a small image in the form of ions, which would deposit the metal on the pin.

A simpler way might be this (though I am not sure it would work): We take light and, through an optical microscope running backwards, we focus it onto a very small photoelectric screen. Then electrons come away from the

screen where the light is shining. These electrons are focused down in size by the electron microscope lenses to impinge directly upon the surface of the metal. Will such a beam etch away the metal if it is run long enough? I don't know. If it doesn't work for a metal surface, it must be possible to find some surface with which to coat the original pin so that, where the electrons bombard, a change is made which we could recognize later.

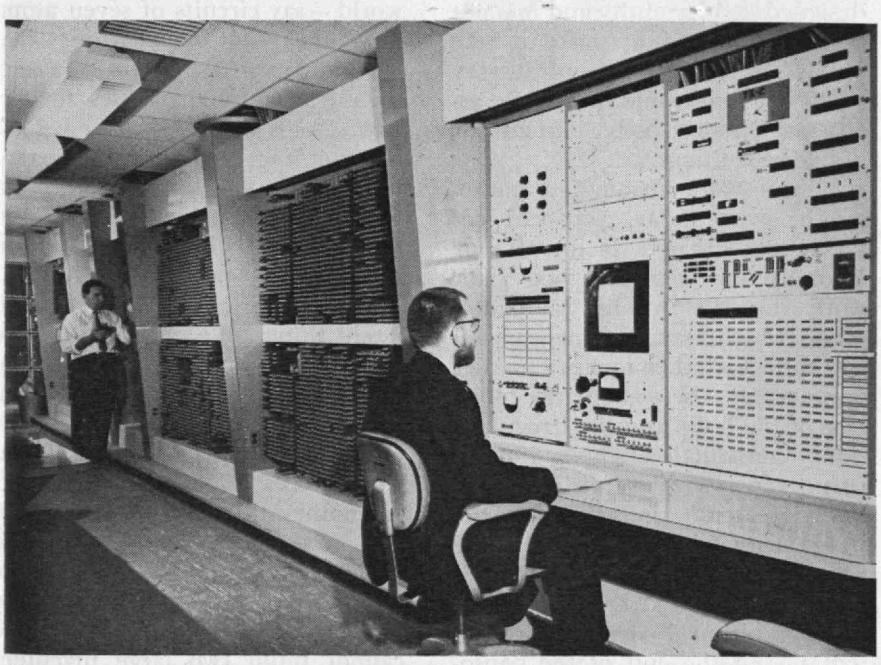
There is no intensity problem in these devices — not what you are used to in magnification, where you have to take a few electrons and spread them over a bigger and bigger screen; it is just the opposite. The light which we get from a page is concentrated onto a very small area so it is very intense. The few electrons which come from the photoelectric screen are demagnified down to a very tiny area so that, again, they are very intense. I don't know why this hasn't been done yet!

24,000,000 Books

That's the *Encyclopaedia Brittanica* on the head of a pin, but let's consider all the books in the world. The Library of Congress has approximately nine million volumes; the British Museum Library has five million volumes; there are also five million volumes in the National Library in France. Undoubtedly there are duplications, so let us say that there are some 24 million volumes of interest in the world.

What would happen if I were to print all this down at the scale we have been discussing? How much space would it take? It would take, of course, the area of about a million pinheads because, instead of there being just the 24 volumes of the *Encyclopaedia,* there are 24 million volumes. The million pinheads can be put in a square of a thousand pins on a side, or an area of about three square yards. That is to say, the silica replica with the paper-thin backing of plastic, with which we have made thé copies, with all this information, is on an area of approximately the size of 35 pages of the *Encyclopaedia*. All of the information which all of mankind has ever recorded in books can be carried around in a pamphlet in your hand — and not written in code, but as a simple reproduction of the original pictures, engravings, and everything else.

Now, the name of this talk is "There Is Plenty of Room at the Bottom" — not just "There Is Room at the Bottom." What I have demonstrated is that there *is* room — that you can decrease the size of things in a practical way. I now want to show that there is *plenty* of room. I will not now discuss how we are going to do it, but only what is possible in principle — in other words, what is possible according to the laws of physics. I am not inventing antigravity, which is possible someday only if the laws are not what we think. I am telling you what could be done if the laws *are* what we think; we are not doing it simply because we haven't yet gotten around to it.



The central computer unit of Whirlwind I occupied 225 lineal feet of racks 10 feet high. The central unit of Lincoln Laboratory's TX-2, shown here, occupies only 48 lineal feet of racks 6 feet high. In this seven times smaller size, TX-2 packs 8 times the computing rate and 25 times the high-speed memory capacity.

Codes in Cubes

Suppose that, instead of trying to reproduce the pictures and all the information directly in its present form, we write only the information content in a code of dots and dashes, or something like that, to represent the various letters. Each letter represents six or seven "bits" of information; that is, you need only about six or seven dots or dashes for each letter. Now, instead of writing everything, as I did before, on the *surface* of the head of a pin, I am going to use the interior of the material as well.

Let us represent a dot by a small spot of one metal, the next dash by an adjacent spot of another metal, and so on. Suppose, to be conservative, that a bit of information is going to require a little cube of atoms 5 x 5 x 5 — that is 125 atoms. Perhaps we need a hundred and some odd atoms to make sure that the information is not lost through diffusion or some other process.

I have estimated how many letters there are in the *Encyclopaedia,* and I have assumed that each of my 24 million books is as big as an *Encyclopaedia* volume, and have calculated, then, how many bits of information there are (10^{15}). For each bit I allow 100 atoms. And it turns out that all of the information that man has carefully accumulated in all the books in the world can be written in this form in a cube of material one two-hundredth of an inch wide — which is the barest piece of dust that can be made out by the human eye. So there is *plenty* of room at the bottom! Don't tell me about microfilm! . . .

A friend of mine (Albert R. Hibbs) suggests a very interesting

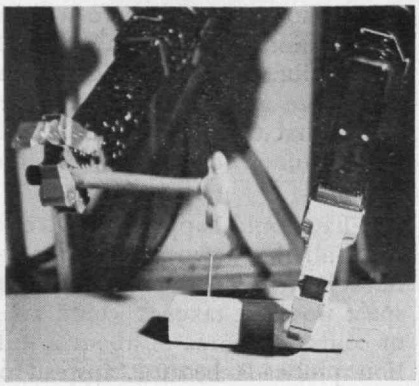
possibility for relatively small machines. He says that, although it is a very wild idea, it would be interesting in surgery if you could swallow the surgeon. You put the mechanical surgeon inside the blood vessel and it goes into the heart and "looks" around. (Of course the information has to be fed out.) It finds out which valve is the faulty one and takes a little knife and slices it out. Other small machines might be permanently incorporated in the body to assist some inadequately functioning organ.

Now comes the interesting question: How do we make such a tiny mechanism? I leave that to you. However, let me suggest one weird possibility. You know, in the atomic energy plants they have materials and machines that they can't handle directly because they have become radioactive. To unscrew nuts and put on bolts and so on, they have a set of master and slave hands, so that by operating a set of levers here, you control the "hands" there, and can turn them this way and that so you can handle things quite nicely.

Most of these devices are actually made rather simply, in that there is a particular cable, like a marionette string, that goes directly from the controls to the "hands." But, of course, things also have been made using servo motors, so that the connection between the one thing and the other is electrical rather than mechanical. When you turn the levers, they turn a servo motor, and it changes the electrical currents in the wires, which repositions a motor at the other end.

Smaller and Smaller Hands

Now, I want to build much the same device — a master-slave system which operates electrically. But I want the slaves to be made especially carefully by modern large-scale machinists so that they are one-fourth the scale of the "hands" that you ordinarily maneuver. So you have a scheme by which you can do things at one-quarter scale anyway — the little servo motors with little hands play with little nuts and bolts; they drill little holes; they are four times smaller. Aha! So I manufacture a quarter-size lathe; I manufacture



This hydromechanical pair of slave hands can perform a wide variety of mechanical tasks precisely.

quarter-size tools; and I make, at the one-quarter scale, still another set of hands again relatively one-quarter size! This is one-sixteenth size, from my point of view. And after I finish doing this I wire directly from my large-scale system, through transformers perhaps, to the one-sixteenth-size servo motors. Thus I can now manipulate the one-sixteenth size hands.

The Precision Problem

Well, you get the principle from there on. It is rather a difficult program, but it is a possibility. You might say that one can go much farther in one step than from one to four. Of course, this has all to be designed very carefully and it is not necessary simply to make it like hands. If you thought of it very carefully, you could probably arrive at a much better system for doing such things.

If you work through a pantograph, even today, you can get much more than a factor of four in even one step. But you can't work directly through a pantograph which makes a smaller pantograph which then makes a smaller pantograph — because of the looseness of the holes and the irregularities of construction. The end of the pantograph wiggles with a relatively greater irregularity than the irregularity with which you move your hands. In going down this scale, I would find the end of the pantograph on the end of the pantograph on the end of the pantograph shaking so badly that it wasn't doing anything sensible at all.

At each stage, it is necessary to improve the precision of the apparatus. If, for instance, having made a small lathe with a pantograph, we find its lead screw irregular — more irregular than the large-scale one — we could lap the lead screw against breakable nuts that you can reverse in the usual way back and forth until this lead screw is, at its scale, as accurate as our original lead screws, at our scale.

We can make flats by rubbing unflat surfaces in triplicates together — in three pairs — and the flats then become flatter than the thing you started with. Thus, it is not impossible to improve precision on a small scale by the correct operations. So, when we build this stuff, it is necessary at each step to improve the accuracy of the equipment by working for awhile down there, making accurate lead screws, Johansen blocks, and all the other materials which we use in accurate machine work at the higher level. We have to stop at each level and manufacture all the stuff to go to the next level — a very long and very difficult program. Perhaps you can figure a better way than that to get down to small scale more rapidly. . . .

Atoms in a Small World

When we get to the very, very small world — say circuits of seven atoms — we have a lot of new things that would happen that represent completely new opportunities for design. Atoms on a small scale behave like *nothing* on a large scale, for they satisfy the laws of quantum mechanics. So, as we go down and fiddle around with the atoms down there, we are working with different laws, and we can expect to do different things. We can manufacture in different ways. We can use, not just circuits, but some system involving the quantized energy levels, or the interactions of quantized spins, etc.

Another thing we will notice is that, if we go down far enough, all of our devices can be mass produced so that they are absolutely perfect copies of one another. We cannot build two large machines so that the dimensions are exactly the same. But if your machine is only 100 atoms high, you only have

(Concluded on page 46)

BUSINESS IN MOTION

To our Colleagues in American Business . . .

The rapid development of the modern submersible water pump has resulted in the development of new applications for old metals.

Recently one of Revere's Technical Advisors was called in by a prominent manufacturer of this type pump for consultation regarding the diffuser casing which is a working part located in the interior of their pump used in deep and shallow wells. It was made of a ferrous metal and, while it functioned satisfactorily as a part, it proved difficult to fabricate. In addition, tool life was alarmingly short. After studying the problem in cooperation with the manufacturer's engineers, and consulting with the Revere Mills, Revere cartridge brass strip of a certain temper was recommended.

Samples were submitted, and after extensive tests approved for the part. The customer has found that not only does the diffuser casing, made of Revere Brass, perform well in the pump, but it also has superior drawing properties, is more easily worked, and tool life has been substantially increased.

This meticulous attention to "fitting the metal to the job" also resulted in this manufacturer's specifying Revere seamless leaded brass tubing for the upper body shell of its submersible pumps. Here the application called for extremely close straightness and roundness control which meant special attention to detail on the part of the Revere Mills.

You have just read of two more examples of the vital importance of selecting the metal that is not only satisfactory from a functional standpoint but one that is equally satisfactory from a production standpoint. For, what may be saved on one hand can very well be lost on the other, if the metal is not properly balanced to fit the conditions met, both in use and in fabrication.

It is only by taking your supplier into your confidence that you can ultimately produce the best possible product at the least possible cost.

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Winter Sports Review Shows Many Victories

IN M.I.T.'s varied winter sports campaign this year, the swimmers, wrestlers, and skiers stood out.

In swimming, Coach Charles Batterman's team posted a 7-3 slate for the second consecutive year, broke 13 M.I.T. records, and finished fourth in the New England championships with two individual titles.

Burnell West, '60, won the New England breast stroke championship and during the season equaled the New England record of 2:29.1. He also swam on the greatest medley relay in Tech history, with Thomas Ising, '61, Antonio Silvestri, '61, and John Windle, '60, which won the New England medley crown in 4:04.6. Ising was defeated only once in 20 events during the season, and West only twice. In diving, William Bails, '62, took third in the New Englands.

Freshman swimmers broke seven records as they splashed their way to an 8-2 slate this season.

In wrestling, Coach Alex Sotir's varsity compiled a 5-3 and two-ties record. John Sullivan, '61, was undefeated in his first seven matches in the 147-pound division and Andrew Bulfer, '61, had a 6-2 record with the 137-pounders. The squad ran up more points (149) than the total for the three previous seasons.

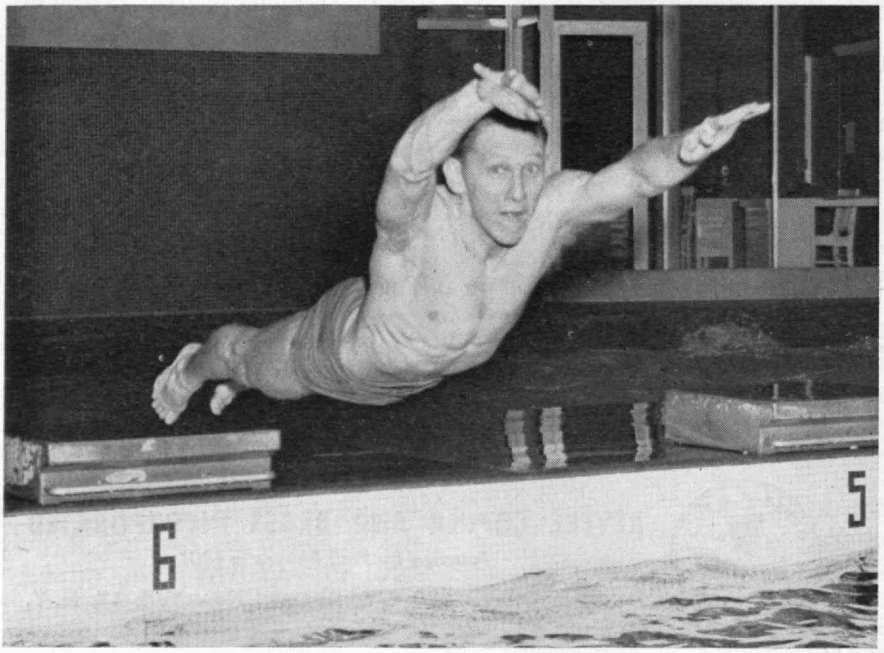
The freshmen finished third in the New Englands, with a 5-2 record, and were considered the most promising squad in many years. James Evans, '63, was undefeated at the 130-pound weight.

Skiers (from left to right) are Dirk Berghager, '62, Peter P. Goldstern, '62, Theodore H. Ansbacher, '60, Ulf B. Heide, '60, Roberto Peccei, '62, Giorgio Emo, '62, and Coach Robert Shoemaker in the Du Pont Athletic Center.

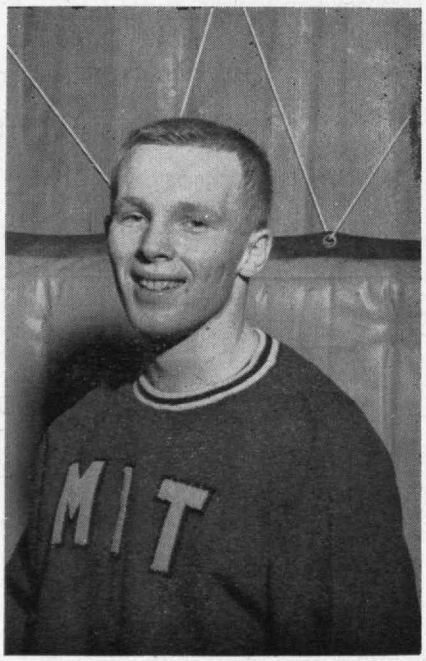
In skiing, Coach Bob Shoemaker's men won another New England championship. They won six meets.

Peter Goldstern, '62 was fourth in New England standing, followed by Roberto Peccei, '62.

A highlight of their campaign was the rallying victory at Killington Basin, Vt., when Goldstern and Peccei finished one-two in a downhill race that hit 55-m.p.h. speeds.



John Windle, '60, was captain of the stellar 1959-1960 Swimming Team.



Donald Weaver, '60, headed wrestlers.

What is the Bell System?

THE Bell System is wires and cables and laboratories and manufacturing plants and local operating companies and millions of telephones in every part of the country.

The Bell System is people . . . hundreds of thousands of employees and more than a million and a half men and women who have invested their savings in the business.

It is more than that. **The Bell System is an idea.**

It is an idea that starts with the policy of providing you with the best possible telephone service at the lowest possible price.

But desire is not enough. Bright dreams and high hopes need to be brought to earth and made to work.

You could have all the equipment and still not have the service you know today.

You could have all the separate parts of the Bell System and not have the benefits of all those parts fitted together in a nationwide whole. It's the time-proved combination of research, manufacturing and operations in one organization—with close teamwork between all three—that results in good service, low cost, and constant improvements in the scope and usefulness of your telephone.

No matter whether it is one of the many tasks of everyday operation—or the special skills needed to invent the Transistor or develop underseas telephone cables—the Bell System has the will and the way to get it done.

And a spirit of courtesy and service that has come to be a most important part of the Bell System idea.

BELL TELEPHONE SYSTEM

American Telephone & Telegraph Company · Bell Telephone Laboratories · Western Electric Company · New England Telephone & Telegraph Company · Southern New England Telephone Company · New York Telephone Company · New Jersey Bell Telephone Company · The Bell Telephone Company of Pennsylvania · Diamond State Telephone Company · The Chesapeake & Potomac Telephone Companies · Southern Bell Telephone & Telegraph Company · The Ohio Bell Telephone Company · Cincinnati & Suburban Telephone Company · Michigan Bell Telephone Company · Indiana Bell Telephone Company · Wisconsin Telephone Company · Illinois Bell Telephone Company · Northwestern Bell Telephone Company · Southwestern Bell Telephone Company · The Mountain States Telephone & Telegraph Company · The Pacific Telephone & Telegraph Company · Pacific Telephone-Northwest · Bell Telephone Company of Nevada

Books

VIRUS HUNTERS, by Greer Williams; Alfred A. Knopf, Inc. ($5.95). *Reviewed by Alexander Rich, Associate Professor of Biophysics, M.I.T.*

VIRUS HUNTERS is Mr. Williams' name for the group of scientists who have carved out our understanding of the structure and behavior of the smallest organisms which exist in biological systems. His book is a highly entertaining and provocative account of the young science of virology. It obviously is patterned after Paul de Kruif's *Microbe Hunters* (first published in 1926) which told in very entertaining fashion the story of man's conquest of the bacterial cell and, by telling the story in terms of the lives of the scientists, became a best seller for over two decades.

Mr. de Kruif's book was written largely about men who were no longer alive and, accordingly, he had a great deal of journalistic latitude in describing the aspirations, frustrations, and idiosyncrasies of the scientists who studied bacteria. Virology, however, is a young science and most of the men who appear in Williams' *Virus Hunters* are alive and still actively pursuing their science. This has an advantage, in that it enabled Williams to speak with men such as Wendell Stanley, John Enders, Jonas Salk, and other contemporary leaders of virology, but also constrained him somewhat in that his description of these contemporary scientists had to cleave close to the facts.

The book is written in a racy, journalistic style which keeps the interest of the reader. Williams tells an essentially chronological story, starting with Jenner and the beginnings of vaccination, and continuing through Pasteur into the modern era. The book has a rather heavy bias in the direction of medical virology and, accordingly, treats in great detail diseases such as influenza, virus hepatitis, measles, and polio. Indeed, a whole section of the book is devoted to the polio story, which is told with considerable clarity. An account of John Enders' substantial contributions to the development of tissue-culture methods for producing polio virus gives proper scientific perspective to the polio vaccine. In glowing detail, Williams paints the development of the Salk vaccine together with its problems and frustrations. The author builds up a great deal of suspense in the reader over the cause for the initial failures and tragedies which were attendant to the use of the Salk vaccine. On the whole, Williams' account is very lively and readable.

In a concluding section on cancer, genes, and "the Heart of the Virus Matter," Williams sketchily outlines a good deal of what today is broadly known as molecular biology. He points out the various theories which scientists have regarding the role of viruses in the origin of cancer. This is at present a very active field of research. In addition, some reference is made to the importance of the nucleic acids in reaching a

(Continued on page 38)

(Continued from page 36)

molecular understanding of the functioning of biological systems. A few technical errors appear in the manuscript, such as referring to nucleotide linkages as peptide bonds, but this does not mar the narrative.

Virus Hunters can be recommended as an entertaining introduction to an active area of science.

CRYSTALS AND CRYSTAL GROWING, by Alan Holden and Phylis Singer; Doubleday & Co. ($1.45). *Reviewed by Martin Mann, '41, Senior Editor of Popular Science Monthly.*

THE simple-minded questions are the toughest. That this fascinating book answers so many, simply and directly, is only one of its several distinctions.

Possibly you already know that hard and rigid glass is not really solid. (Its atoms are not filed in orderly crystals, and only crystals are true solids.) And you may also know one clue to glass's amorphous nature. (It lacks a sharp melting point, gradually softening when heated.) But did you know why crystals change suddenly from solid to liquid, while glass does not? A crystal is uniform; when increasing temperature adds enough energy to shake its tiny units out of position, all the units fall free and flow as a liquid. Glass, on the other hand, is a disordered conglomeration, so rising temperature permits one molecule after another to slide around its neighbors.

And did you know what makes solids dissolve in liquids? The solvent either weakens the forces that lock the solid molecules together or else pulls on the molecules harder than these attractive forces (or sometimes does both). Or why water is a superlative solvent? It possesses an exceptional ability to reduce electric forces of attraction between molecules.

Such intriguing tidbits are an integral part of the fundamental understanding of nature that Alan Holden and Phylis Singer provide as they explain crystals. They start at the beginning (the differences distinguishing solids, liquids, and gases) and carry the reader on to what seems to me a fairly sophisticated discussion of the structure and habits of solid matter.

Roughly one-third of their book is devoted to this kind of exposition. The middle third is straight how-to-do-it: methods and recipes for growing and experimenting on a variety of beautiful crystals. The remainder explains how scientists study, manipulate, and classify crystals – this section, I suspect, will separate the *aficionados* from the casually curious. Four pages in the appendix merit special note: They outline 10 research problems that are much more than routine projects for science fairs.

The writing is clear, straightforward, and occasionally graceful. There are many explanatory drawings – and a good selection of photographs. The authors hew to the party line of their sponsors, the Physical Science Study Committee; they describe crystallography as a pure science, worth studying for its own sake. Nowhere will you find a hint of the exciting technology (transistors, magnets, superstrong metals) that is evolving from our new understanding of crystals.

(Concluded on page 40)

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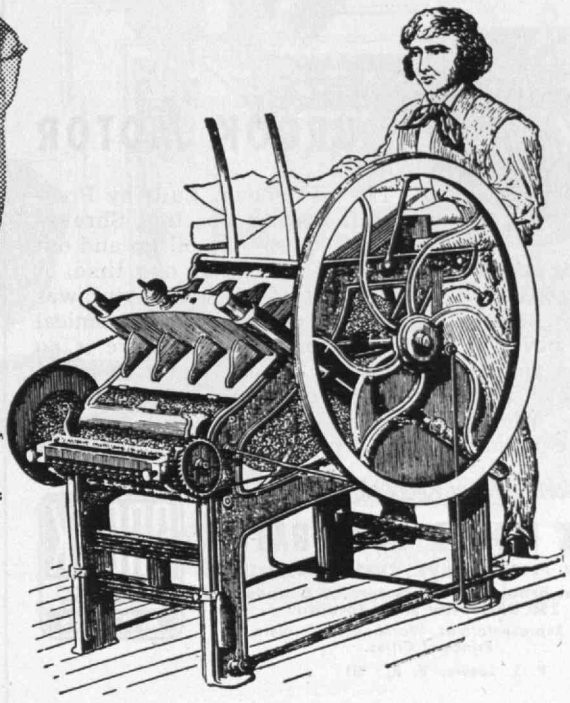

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Books

(Concluded from page 38)

A Variety of Topics

RECENT BOOKS by Alumni and the M.I.T. Faculty's members include:

Circuit Theory of Linear Noisy Networks, by Hermann A. Haus, '54, and Richard B. Adler, '43, of the M.I.T. Department of Electrical Engineering (John Wiley & Sons, Inc., $4.50).

Fire Control Principles, by Walter Wrigley, '34, and John Hovorka of the M.I.T. Instrumentation Laboratory (McGraw-Hill Book Co., $10).

Fluid Power Control, edited by John F. Blackburn, Gerhard Reethof, '47, and J. Lowen Shearer, '50, of the M.I.T. Dynamic Analysis and Control Laboratory (Technology Press, $17.50). The contributors include Richard H. Frazier, '23, John A. Hrones, '34, Shih-ying Lee, '43, Henry M. Paynter, '44, James L. Coakley, '51, Frederick D. Ezekiel, '51, Thomas E. Hoffman, '51, and Alan H. Stenning, '51.

Introduction to Geophysical Prospecting, by Milton B. Dobrin, '36 (McGraw-Hill Book Co., $9.50). This is a second edition covering technical advances since 1950.

Primer of Lamps and Lighting, by Willard J. Allphin, '25, (Chilton Co., $10).

The United States in the World Arena, by Walt W. Rostow, Professor of Economic History at M.I.T. (Harper & Brothers, $8.75).

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Trend of Affairs
(Concluded from page 20)

Learning From Tape

TAPE RECORDINGS of law cases are being produced by Stanley M. Jacks of the M.I.T. School of Industrial Management to make labor-management problems more stimulating and understandable.

The first two-hour tape of a series that he plans is a recording of the proceedings and the comments of participants in a case involving the Mount Hope Finishing Company of North Dighton, Mass., and the Textile Workers Union. The Union took this case to the National Labor Relations Board, but its decision was reversed later by the U.S. Court of Appeals. Locating the principals, obtaining permission, recording their remarks, and editing the voluminous record took a year and a half.

"Although I recognize that audio-visual methods are used in teaching law as well as other subjects," says its producer, "I feel that this is the first example of comprehensive tape recording in which the voices of actual participants are used. As a result, the tape has been borrowed for use in classes at a number of colleges. Students gain an understanding of the complexities of legal proceedings, and in being confronted by real people involved in a real controversy, find it extremely difficult to maintain any pre-listening prejudices as to which side is right. A new image of the problems posed by the case is produced through listening."

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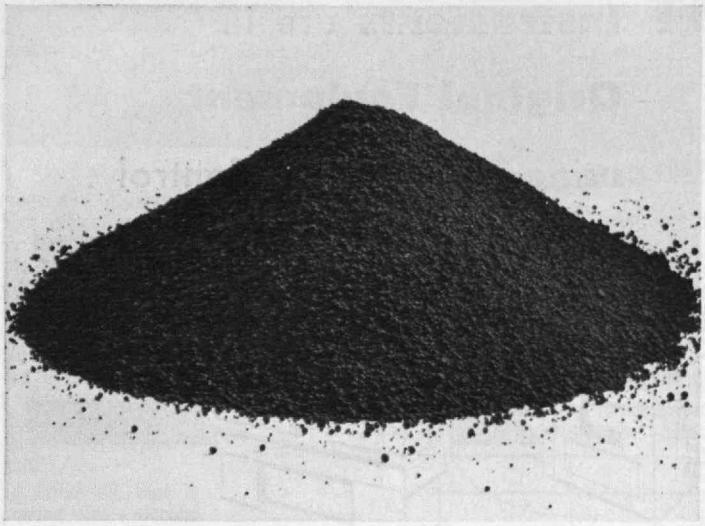

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Modern Campus Architecture

(*Concluded from page 29*)

fied that such a great scientific and engineering institution found a place for the humanities, giving scientists a background in other things of the spirit which are challenging to every man.

When colleges and universities raise the general level of appreciation of architecture, the results will eventually be seen everywhere. Students become the community leaders who serve on school boards and decide about new buildings; who have ideas for civic improvements in the business districts, in the parks, on the highways. Through general education our people should be taught the importance of beautiful surroundings — which are, after all, a national asset.

In addition, the campuses themselves can serve as good examples of what architectural planning should be. Probably the thing that has caused the most difficulty in the campus of today is that no long-range provisions were made for the campus's development. Because many founders and leaders did not foresee the rapid growth of education, cities have grown up around many institutions and they no longer have elbow room. A crowded, hemmed-in campus is hard-put to be a thing of beauty, even with the best of buildings.

Every educational institution should have a master plan — one that, insofar as it can be, is the vision of able professionals for a future of fifty to one hundred years. Naturally, such a plan will undergo modification as time passes, but at least you are building with some conscientiousness and a final conception in mind. Too many college buildings have been arbitrarily put in the wrong places at the whim of a president or trustee; too many designs and materials have been selected without regard to the appearance of the whole.

Given a plan for the future, every university and college can make a place for the new architecture which will evolve without being prey to every passing fashion. It is never too late to start.

Room at the Bottom

(Concluded from page 32)

to get it correct to one-half of one per cent to make sure the other machine is exactly the same size—namely, 100 atoms high!

At the atomic level, we have new kinds of forces and new kinds of possibilities, new kinds of effects. The principles of physics, as far as I can see, do not speak against the possibility of maneuvering things atom by atom. It is not an attempt to violate any laws; it is something, in principle, that can be done; but, in practice, it has not been done because we are too big. . . .

But it is interesting that it would be, in principle, possible (I think) for a physicist to synthesize any chemical substance that the chemist writes down. Give the orders and the physicist synthesizes it. . . .

High School Fun

Just for the fun of it, and in order to get kids interested in this field, I would propose that someone who has some contact with the high schools think of making some kind of high school competition. After all, we haven't even started in this field, and even the kids can write smaller than has ever been written before. They could have competition in high schools. Los Angeles high school could send a pin to the Venice high school on which it says, "How's this?" They get the pin back, and in the dot of the *i* it says, "Not so hot."

Perhaps this doesn't excite you to do it, and only economics will do so. Then I want to do something; but I can't do it at the present moment, because I haven't prepared the ground. It is my intention to offer a prize of $1,000 to the first guy who can take the information on the page of a book and put it on an area 1/25,000 smaller in linear scale in such manner that it can be read by an electron microscope.

And I want to offer another prize — if I can figure out how to phrase it so that I don't get into a mess of arguments about definitions — of another $1,000 to the first guy who makes an operating electric motor — a rotating electric motor which can be controlled from the outside and, not counting lead-in wires, is only a 1/64-inch cube.

Feedback

(Continued from page 3)

the classical notation, but rather, in the primary grades especially, it provides a transitory language to a deeper and more penetrating vocabulary.

Thus, I cannot agree with your implication, if this is what it is, that the use of the "new" notation is lightly thrusting aside the efforts of centuries. Properly used, it can provide the fundamental understanding that algebra is a language, as well as a means of solving problems, and, as in all languages, different arrangements of letters and symbols may have the same meaning.

230 Washington Street,
Mount Vernon, N.Y.

The Relevant Facts Lead To "The Larger Learning"

FROM W. E. HOWLAND, '22:

In the article entitled "The Larger Learning" in the Technology Review of March, 1960, Professor Huston Smith rightly pleads for an education that will "promulgate," not only "intellectual honesty," "scope of knowledge," "dialectical agility" and "aesthetic sensitivity" as he says most institutions of higher learning strive to do, but, in addition, "diligence," "moral honesty" and "academic freedom." The former so-called "academic virtues" entail the latter as supports. . . .

In recognizing a distinction between the intellectual and the human or less-intellectual virtues he seems to imply that there is a corresponding difference in methods needed for "promulgating" them — that the intellectual processes, especially reasoning, are appropriate for inculcating the intellectual virtues but that different "guides" or different methods are required for the others. He mentions "example" and "habituation" to a "style of life." Yet surely these means apply with equal force to the cultivation of the more strictly intellectual virtues as well, and are actually employed at our universities and colleges for this high purpose. Likewise, logic applied to the facts of life supports the value of love. He has, I suspect, some other specialized methods in mind for promoting the so-called human virtues, or to use his phrase, developing "spiritual growth."

But why the difference? Is not moral honesty compounded of the same ingredients as intellectual honesty and is not the same also true of diligence, academic and otherwise? And of freedom also? Academic freedom started to become a reality when courageous intellectuals like Galileo and Servetus challenged the power of those ecclesiastics who so zealously guarded the value of authority both of Aristotle and of the church. Freedom in general owes little to the "Larger Learning" of the Middle Ages, but much to the efforts of Renaissance intellectuals.

Love for one's fellow man is, I agree, more than an intellectual virtue since it stems from the very depths of our biological nature — from the herd-instinct, so-called. Proper instruction would point this out as it underscores the importance

of love in life. The intellect has always been required to examine the meaning of this most Christian virtue for Christians have burned and slaughtered Christians — heretics, of course — out of love for their souls and for the greater glory of God. The recognition of the fact — the scientific fact — of the supreme value of love to the individual who loves, and to his family and to society in general, is an intellectual task of great difficulty in the confusion of propaganda that still abounds on behalf of competing and partial values and loyalties for gods, for countries and for Yales — of rival cults, corporations, and country clubs. Organizational salesmanship, an art already highly developed in the Dark Ages, is all-pervasive; concern for people — like music on the radio — is often out-decibelled by the blare of proselyting preachments as well as by the beat of the conscienceless drummers. Perhaps we need the good judgment to turn off the noisy radio still more than we need additional programs, even on behalf of values, to give us time to think about them.

In the main, I accept Professor Smith's judgments on values as he expresses them in this excellent article: what they are and their relative importance. And if he is mistaken the only means of finding his errors and of proving him wrong is intelligent thought.

My views, I admit, belong to the Eighteenth Century, still called the "Enlightenment" by scholars like Professor Smith. Man is basically and predominantly good!

It "lies within" his nature to love the other members of the human species. He does not need to have this virtue instilled into him by the magical arts as by invocation and incantation (pictured between the paragraphs of Professor Smith's article) so much as to be taught the relevant facts via the arts and social sciences and to be helped and encouraged by his teachers to think clearly about all these matters — as he is about atoms and neutrons — so as to be able to expose the false claims and to validate the sound ones of prevailing philosophies. This kind of education will, I feel sure, give his deep-seated humanitarian drives the license they need to express themselves in his life and work, perhaps as an engineer.

So, in my view, the "learning" that he requires even in the "larger" areas of his life turns out to be largely intellectual after all.

Purdue University
Lafayette, Ind.

Another Vote for Boldface

FROM RAYMOND A. SNOW, '21:

I am interested in the comment of Richard W. Willard, '51, in the "Feedback" column of the December issue, relating to the use of boldface type.

I strongly concur in his suggestion. Very few Alumni have any interest in news about classmates who were not well known to them in their undergraduate days. As the notes are now published it is tiresome to read through lines and lines of notes looking for a familiar name.

I like the new format of The Review.

Raleigh, N.C.

M.I.T.'s Humanities Course

(*Concluded from page 23*)

Course XXI is not a short cut to becoming a scientist or a magic way of becoming a humanist. Its aim is to use the resources of a great center of scientific and technological knowledge in terms of the learning and culture of the past and present of our world. This aim, which should bring the study and understanding of science, technology, and the humanities together, demands the arduous discipline common to every field of study at M.I.T.

Where Are They Now?

Of the 10 members of the Class of 1958 who took Course XXI, three now are teaching in preparatory or high schools, two are in graduate work in science and engineering (one a Rhodes scholar), two are in medical school, one in graduate work in the philosophy of science, and one in the Air Force.

The Class of 1959 has 18 Course XXI graduates, of whom there are four now in business, four in graduate work in English literature, three in the armed services, two in scientific editing and writing, one in law school, one in medical school, and one in graduate work in engineering at M.I.T.

It is clear that the range is wide and that the program is unique in American education today. Course XXI can begin to introduce a student to a professional life as a scientist or engineer or to a variety of professions or to public service which demands both a knowledge of the science and technology of the modern world and an understanding of its civilization.

Behind the curriculum is a philosophy of education which, in stressing the importance of individual development, flexibility, intellectual discipline and experiment, aims to break down the barriers — sometimes real and sometimes imagined — which have often separated scientists and humanists. Course XXI, in short, offers the kind of education which has become an increasingly important prerequisite for men who are to exercise responsibility and judgment in the affairs of our society and who are to see all human activities as part of their own lives as citizens and professional people.

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32.50

Jackets 25.00

Institute Yesteryears

25 Years Ago . . .

ON MAY 11, 1935, the Institute mourned the passing of Alfred Edgar Burton, its first Dean of Students from 1902 until his retirement as an Emeritus Professor in 1921. Born at Portland, Maine, on March 24, 1857, he was graduated as a member of the Class of 1878 at Bowdoin College, and after serving as a topographer with the United States Coast and Geodetic Survey, came to M.I.T. in 1882, becoming Professor of Topographical Engineering in 1896.

Among the spontaneous tributes prompted by his retirement in 1921, that of The Review's editor, Professor Robert E. Rogers, most charmingly and adequately portrayed the qualities which made Dean Burton "one of the great men in Technology's history." He wrote in part:

"And withal our Dean never lost his dignity, he was never razzed in an unkindly spirit, he never condescended, was never aloof, or petulant; it never seemed an effort, though often it must have been, to be so continually with the men; to understand them, to separate the essential from the inessential, to praise or reprove the essential and let the inessential go as of no importance.

"It never seemed an effort, as it surely must have been, in the days before the medical service was instituted, to keep track of the boys who were sick and lonely, to get doctors for them and to visit them; at how great a sacrifice of time and strength nobody knows, to find the boys who were badly lodged or in the wrong neighborhoods or the wrong company; to keep track of the foreign boys who so often were entirely on their own responsibility in a strange city, and to try to give them something of our American home life and companionship. It never seemed a task to this man of splendid strength, who wore his years so lightly, who kept his temper, and his courage and enthusiasm, and, above all, his humor, so unquenchably alive. . . .

"He was an artist using the tools of science, and, later, the tools of human relationships. He loved to create in art; he loved the masquerades and merrymakings at his home, his little marionette theater he spent so much care and pains upon; he loved, apparently, to dress up and see others play a part; he loved to see people come out of their shells and create, for their own pleasure and happiness. And in that he was the finest artist of all. Lots of people can teach science and engineering and things; lots of people can be good administrators and efficient deans. But the man who is an artist in an inartistic job is one in a million. And that is Dean Burton . . . a creative artist in teaching men how to live."

50 Years Ago . . .

AT A MEETING of the Alumni Council, it was announced that the Executive Committee of the Corporation had unanimously approved the Council's recommendation that a Congress of Technology be held in connection with the celebration of the 50th anniversary of the granting of the Institute's charter.

Also, by a further communication, President Richard C. Maclaurin acknowledged receipt of a report by the Council's committee on aëronautics, but stated that "before definite steps could be taken to follow the suggestions of the Council, expert advice is to be obtained by the President of the Institute. The Executive Committee is of the opinion that now is the time to establish work in aëronautics, but also believes heartily in the suggestion that the work be of the character of graduate research rather than a regular undergraduate Course. Information has been sought from foreign universities where already some investigations in aëronautics have been made."

75 Years Ago . . .

THE SOPHOMORE Class of 1887, at a meeting held May 16, 1885, "voted to issue an Institute Annual next year." Thus was started a chain of activity which culminated in the first edition of *Technique*.

¶To the editor of *The Tech* it seemed appropriate to issue words of caution for, wrote he, "Already the shadow of the coming annuals has begun to darken the bright and hilarious days of class-dinners, Senior balls, and Glee Club receptions. The weary Seniors are grinding out their theses; the Junior begins to burn the midnight oil over his applied mechanics;

(Concluded on page 54)

Institute Yesteryears

(Continued from page 52)

thoughts of the grand ordeal in physics intrude, like nightmares, into Sophomoric dreams; and chemical equations disturb the sweet slumbers of the Freshmen.

"That examinations are an evil, all alike agree."

¶The editor equally viewed with alarm the "lack of interest in athletics at the Institute." But this, he believed, "although much to be deplored as it is, can scarcely be considered unnatural. To be sure, a gymnasium is open to the students, in which they may practice if they wish; but here the Faculty's interest in the physical well-being of the student ceases. They offer no inducement to the students to take regular healthy exercise.

"The gymnasium is open; but it is too open, and at the same time not open enough. Anyone can go in, and if he sees fit, or ignorantly, he may do himself any amount of harm; there is no instructor to tell him what he needs, or restrain him from what he does not need. On the other hand, the gymnasium is practically closed to those who feel their inability to judge of their own requirements, because of their inexperience in things of the sort."

Syracuse Regatta Will Be June 18

M.I.T. will send three crews this year to the annual Intercollegiate Rowing Association Regatta on Onondaga Lake, near Syracuse, N.Y., on June 18. IRA tickets may be purchased by contacting the M.I.T. Athletic Department.

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Club Notes

Three Connecticut Clubs To Hear Dr. Stratton

Alumni from the New Haven, Fairfield, and Hartford Clubs are expected to hear Dr. Stratton speak at Les Shaw's Restaurant in New Haven on May 16.

The M.I.T. Club of Hartford held a dinner meeting for members, their wives and guests on Tuesday, February 16, at the Travelers Insurance Company. A cocktail party, preceding the dinner, was held at the Hartford Club for officers of the Alumni club and the guest speaker, Columbus O'D. Iselin, Professor of Oceanography at M.I.T. and Bigelow Oceanographer of the Woods Hole Oceanographic Institution.

After an excellent roast beef dinner and several remarks by President Ed Kane'47 and Donald Severance'38, Secretary and Treasurer of the M.I.T. Alumni Association, the speaker for the evening was introduced by Thomas F. Malone'46, Director of Research for Travelers. Before a crowd of about 400 people Dr. Iselin sketched the major problems in oceanography and indicated several of the economic and technical difficulties which must be overcome in order to harvest the resources of the oceans. He noted the high level of international co-operation in the marine sciences and pointed out the need for such co-operation, especially in conducting studies such as the disposal of radioactive waste in the oceans. As a result of the International Geophysical Year, he stated, a number of nations formed the Special Committee of Oceanographic Research which will concentrate on the question of radioactive waste disposal using the Indian Ocean as a testing ground. He predicted the development of practical methods of farming the oceans, utilizing acoustical "fences" operating at frequencies selected to control the movements of fish. Dr. Iselin discussed means of stirring up the seas to distribute more of the mineral resources lying in the deepest waters and thus increase the harvest. He also mentioned some of the practical applications of oceanography.

Guests of the meeting included members of the Connecticut Valley chapter of the American Meteorological Society and the Naval Reserve Officers organization. Among those attending the meeting were: Mr. and Mrs. Charles Britton'33, Mr. and Mrs. Alan Crowell'25, Martin Fink'52, Gerald Golden'54, Thomas Green'26, Mr. and Mrs. Ed Kane'47, Mr. and Mrs. Joe Kozol'54, Andrew LaPenta'22, Dr. and Mrs. Thomas Malone'46, Mr. and Mrs. Marshall McGuire'42, Mr. and Mrs. Frank Seeley'42, Mr. and Mrs. Al Shulman'37, Donald Severance'38, Mr. and Mrs. Ray St. Laurent'21, Mr. and Mrs. John Swift '27, and Mr. and Mrs. Lester Smith'50. — JOSEPH KOZOL'54, *Assistant Secretary,* 7 Norfolk Street, Hartford, Conn.

Liepmann and Morison Guests At New Haven M.I.T. Club

The New Haven County M.I.T. Club started off the 1959-1960 season on a musical note with Professor Klaus Liepmann giving an interesting and enjoyable presentation on "The Language of Music." Continuing in the cultural vein, for the November meeting the club sponsored a dinner-theater party at which the members attended Oscar Wilde's witty and entertaining play, "The Importance of Being Earnest," as presented by the Yale Drama Club.

In February we held a meeting at which Professor Elting E. Morison discussed the "History of Innovation." His talk was enthusiastically received by the club members and their wives. At the same time the club had an innovation of its own with John Gunnarson'46, the first speaker in a program to introduce club members to the industry in this area. John talked about MB Electronics where he is general manager.

The major event to which the club has been looking forward will be a talk by Dr. Julius A. Stratton'23, to be presented on May 16 at New Haven for the joint assemblage of the Fairfield County, Hartford, and New Haven County M.I.T. clubs. This will be the high spot of the year and a large turnout of Alumni and wives is expected. — WILLIAM B. MALEY '48, *Secretary,* 479 Ridge View Road, Orange, Conn.

Washington Hears Dr. York On Defense Projects

Dr. Herbert F. York, Chief of research and development for the Department of Defense, was the speaker at the midwinter dinner of the M.I.T. Club of Washington on February 26, 1960, at the Cosmos Club. One hundred and eighty-two members, wives, and guests attended this meeting and heard the club president, Major General Charles E. Loucks '31, USA (ret), introduce Richard Morse, Director of research and development for the Army, who in turn introduced Dr. York.

The topic of the talk was a discussion of the present and future defense projects of the Department of Defense. Dr. York stated that the present limit of about $40 billion on military spending imposed "automatic limits" on both research, development, and production programs. He added: "When we start something new and big we automatically have to stop something else that is big or cancel many smaller things." He also talked about the "deterrent weapons" to come along in the late 1960's and 1970's, including the B-70 bomber, the nuclear bomber project, and the nuclear ramjet.

Dr. York concluded his interesting talk with the philosophy that it was policy to continue work on all feasible projects and make a decision later as to which ones were suitable for production. A lively question and answer period followed, indicating the enthusiasm with which the audience received the informative speech. Much credit for the success of the event is due to the recently organized M.I.T. Dames of Washington who conducted a telephone campaign to stimulate interest and reservations and helped with arrangements for the dinner. — JOHN G. BEEBE-CENTER, JR.'56, *Secretary,* 3516 Lowell Street, NW, Washington, D.C.

Dr. Iselin (left) and Dr. Malone, at the Hartford Club dinner meeting.

Detroit Association Tours National Bank of Detroit

In the face of a five-inch snowfall and miserable driving conditions, 63 loyal Alumni and their wives arrived at the new main office building of the National Bank of Detroit on the evening of March 3, 1960. After dinner in the bank's cafeteria, we had a tour of the new building. Seeing automatic processing equipment and a unique pneumatic tube conveyor system were two of the tour's highlights. We then had a summary of the economic situation and the stock market outlook by the heads of the bank and trust investment departments, followed by a question and answer period.

We have lost our treasurer, Jay C. Gilmore'51, who has moved to White Plains, N.Y. His duties have been taken over by Charles A. Doverspike'52. — W. JAMES MAST'53, *Secretary,* 420 McKinley Road, Grosse Pointe Farms 36, Mich.

M.I.T. Women's Association Hears Dr. and Mrs. Teager

The midwinter meeting of the Women's Association was held on Saturday, February 13, at the Emma Rogers Room. The speakers at this meeting were Dr. and Mrs. Herbert Teager'52. Their topic was "Thinking Machines," a subject they are well acquainted with after being jointly responsible for the successful installation of an IBM 704 computation center to control production and schedule operations at the Mare Island, Calif., shipyard.

Dr. Teager assured us that there is still no danger of machines taking over control, and Mrs. Teager told of many humorous incidents connected with computer installations. — ANNA BAILEY'54, *Recording Secretary,* 61 Columbia Street, Brookline 46, Mass.

Dr. and Mrs. Killian (in center) were honored at a Beirut luncheon.

Beirut Alumni Entertain Dr. and Mrs. Killian

Dr. and Mrs. James R. Killian, Jr.'26 arrived in Beirut on February 8, 1960, as part of their round-the-world tour. In honor of their visit, the M.I.T. Alumni teaching at the American University of Beirut, Professors Henry B. Backenstoss '34, Raymond S. Ghosn'50, and Edward S. Hope'26, arranged a program of sightseeing and meeting M.I.T. Alumni.

The day began with a trip over the Lebanon mountains to the valley of the Bakka'a. Here Professor Kalayan, a member of the A.U.B. faculty and chief engineer for the department of antiquities, conducted the party through the ruins of the ancient temples of Baalbek and pointed out and explained items of interest. At noon there was a luncheon at the A.U.B. alumni club which was attended by 14 M.I.T. Alumni and their wives. Here Dr. Killian gave a brief talk outlining the development of M.I.T., its present trends and needs. He also made his first public mention of his appointment to the Commission on National Goals.

The afternoon's activities included a visit to the Contracting and Trading Company Building, constructed by Emile Bustani'33 and Associates; a visit with Dr. J. Paul Leonard, President of A.U.B., and Dean C. Ken Weidner; and finally a reception at Hope's apartment. The guests at the reception included M.I.T. Alumni, heads of educational institutions in the city, and the professors of the engineering faculty at A.U.B.—Edward S. Hope'26.

Central New York Club Hears Reed at Dinner Meeting

Twenty-three Alumni and guests of the M.I.T. Club of Central New York spent a most enjoyable and informative evening with Art Reed'43G at their February dinner meeting held at the Corinthian Club in Syracuse. Art, who is commissioner of the Department of City Planning for the rapidly growing city of Syracuse, outlined the future of Syracuse in terms of new roadways, urban renewal, and proposals for downtown shopping areas.

Members and guests present included Bernie Chertow'48 and Mrs. Chertow, Gene Drucker'49, Greg Gebert'50 and Mrs. Gebert, Bob Holton'57 and Mrs. Holton, John Holton'17 and Mrs. Holton, Fred Hungerford'24 and Mrs. Hungerford, Bill Lauder'35, Earle MacLeod'38 and Mrs. MacLeod, John Marsland'57 and Mrs. Marsland, Alex Pausley'54 and Mrs. Pausley, Art Reed'43G, Charlie Stockdale'52, and Mrs. Stockdale, and Bud West'44 and Mrs. West.

Due to Charlie Stockdale's Course XV training and his unexpected transfer to Rochester, N. Y., general audit of the secretary-treasurer's books will be made. Be sure to contribute to the Alumni Fund so that you will receive future copies of The Review and learn the amazing outcome. — Charles L. Stockdale'52, *Secretary*, 118 Haverhill Drive, Dewitt 14, N.Y.

Rochester Club Reports On Luncheon and Lecture

About 100 Alumni, students, and high school seniors met for our annual Christmas luncheon. President Phil Kron'34 was largely responsible for the size of the group with a spectacular assist from Howard Samuels'41, who brought a group from Kordite which challenged the Kodak contingent for size. Harry Essley'36, educational counselor, brought the high school students to give them an introduction to the men of M.I.T., and Avery A. Ashdown'24, gave his annual report on the Institute.

Our first "Technology" lecture, open to the public of Rochester, presented Dr. Carl F. J. Overhage, Director of Lincoln Laboratory, who discussed "Reaching into Space with Radar." Gordon Calderwood'27 arranged for the program which was held in Dryden Theater. Dinner at the Treadway Inn preceded the talk. Again the meeting was a success in spite of another snowstorm.

A recent news article reported that John L. Espy'47 of Eastman Kodak Company received a $1700 award for his share of a suggestion submitted to the engineering division of Kodak Park. — Arnold Mackintosh, Jr.'44, *Secretary*, 164 Glen Haven Road, Rochester 9, N.Y.

Northern New Jersey Hears Cutler from Bell Labs

The mid-winter meeting at the M.I.T. Club of Northern New Jersey on March 8 at the Hotel Suburban, East Orange, was addressed by Mr. C. Chapin Cutler, Assistant Director of electronics and radio research at the Bell Telephone Laboratories. Ray Brooks'17, who plans to retire from Bell Labs this year, introduced the speaker. Mr. Cutler described recent experiments preliminary to using artificial satellites for long-distance radio communications. Later John M. D. Walch'48, a regional chairman for the Educational Council, described its activities in the club's area, and Joseph Wenick'21, treasurer, reported the club was safely solvent and had 257 members, a new high. However, in view of the large number of Alumni living nearby, he felt the membership should exceed 400. Refreshments were served after the meeting.

The M.I.T. Glee Club presented Mendelssohn's oratorio "Elijah" on March 6 at Douglass College of Rutgers. A. Donald Green'26, our club president, was asked to house 20 of the singers in Westfield and this was accomplished through the efforts of E. C. Hermann'25.

The annual dinner meeting, which includes the ladies, is scheduled for May at Hotel Suburban, East Orange. — James J. Shyne'43, *Secretary*, 21 Smull Avenue, Caldwell, N.J.; Howard E. Milius'38, *Assistant Secretary*, 9 Tuxedo Place, Cranford, N.J.

Spring Meeting on May 6 For Western Maine Club

The M.I.T. Club of Western Maine will hold its spring meeting on Friday, May 6, at the Lafayette Hotel in Portland. John R. Newell'34, President of the Bath Iron Works Corporation, will deliver an informal talk on current trends in the Navy and the Bath Iron Works. We would like to see as many Alumni as possible from this area attend, as it promises to be an interesting evening. It is also a good opportunity to renew old acquaintances.

Notices will be mailed but if you do not happen to be on the mailing list, please do not hesitate to contact the undersigned. Ladies are always welcome at the meeting.—Robert A. Lindquist'51, 1 Farm Hill Road, Cape Elizabeth, Maine.

Norway Club Discusses Changes in School System

The first regular meeting of the M.I.T. Club of Norway was held on January 25, 1960. Forty Alumni and their wives attended. The meeting began with a valuable discussion of the school system in Norway on the grade school and high school levels. Great changes are being made here at the present time, and the subject was one of rather universal interest. Afterwards we had a pleasant dinner and coffee. From the general reaction of those present, the evening seems to have been very successful. The next meeting was to be April 25. — Andresa Wessel, Jr. '52, *Secretary-Treasurer*, Firma Weswitco, Olaf Schous, Vei 4, Oslo, Norway.

New York City Club Reminisces on History

1960 finds the M.I.T. Club of New York in an important phase of its history, which dates back 68 years to 1892. From general activities in the club dining room and evening gatherings, there is a clear and detectable atmosphere that the club's purpose is being maintained and furthered. This purpose, according to the Articles of Incorporation adopted June 20, 1947, is "to encourage and promote closer relationship, fellowship and social intercourse among undergraduates, former students, Alumni, and members of the faculty of M.I.T., and to foster and maintain their loyalty to, and to further the interests and welfare of M.I.T."

The club's history has been highlighted by Alex R. McKim'85, who steered what was then called the Technology Club through its first 15 years, from 1892 to 1907; the first annual dinner in 1904 when Tiffany's loaned a $600,000 diamond for a demonstration of radium; the raising of $30,000 in 1909 for alterations and furnishings for the new club home at Gramercy Park; the 1914 annual dinner when Lester D. Gardner'98 officially proposed that M.I.T. adopt the beaver as its mascot; and the annual dinner in 1925 at the Waldorf Astoria when, for the first time in history, a toastmaster simultaneously addressed the people there and those attending dinners elsewhere (guests at dinners in the United States, Hawaii, and England). These events do not happen every year. It is evident, however, that this year the club is suddenly being "discovered" by out-of-towners as well as New York residents. Member interests are increasing and seem to be diversifying as reflected by the attendance of many members at lunch, at the Silver Stein Dinner, and at technical seminars.

It isn't likely that this year will be recorded as the year a data processing machine to automate an entire automobile assembly plant was demonstrated at the Hotel Biltmore (although one never knows). However, equally dramatic quiet events are taking shape right now at the M.I.T. Club of New York. — James M. Margolis, *Secretary*, 5 Fenton Street, Rye, N.Y.

Dr. Goldblith Guest Speaker At Central Massachusetts Club

The third meeting this year of the M.I.T. Club of Central Massachusetts was held at Ralph Mahony's'18, Sterling Inn. Samuel A. Goldblith'40, acting head of the Food Technology Department of M.I.T., presented an illustrated discussion on "Food Science in the Space Age." Dr. Goldblith discussed the advancement of food technology from the 1850's to the present time. He noted that present research was concerned with the application of electronics in food research. He then did some crystal ball gazing towards the problem of foods for manned satellites.

Representatives of food processing firms in central Massachusetts, high school and college teachers of science and home sciences, hospital institutions, and representatives of other groups involved in preparing, preserving, packaging, and distributing foods also attended the meeting. Dr. Leo T. Doherty, Superintendent of Worcester Schools, headed the school department personnel attending the meeting. Art Lowery'32 was chairman of this meeting and was responsible for the presentation of Dr. Goldblith's talk to the Worcester representatives in the food industry. The members and guests attending the meeting were enthusiastic about the talk.

The next meeting of the club will be at the Boston Pop's concert. Dinner preceding the Pop's concert will be at the M.I.T. Faculty Club. Only 100 tickets are going to be made available to us from the student body's musical groups. Please forward your reservations as soon as possible after receipt of final notification of date and details. Tech night at the Pops is Sunday, May 29, 1960. — Harry B. Duane'57, Secretary, 15 Algonquin Road, Worcester 9, Mass.

These members of the M.I.T. Hong Kong Club met with the W. E. Barbours'33.

Buffalo and Niagara Falls Club Announces Annual Meeting

The annual meeting will be held this year at the Niagara Falls Country Club, Thursday, May 19. Professor C. Stark Draper of the Department of Aeronautics and Astronautics will speak on "Space Travel and Inertial Navigation." As is traditional with our club, husbands and wives of members are invited. Any member who has not received a notice and wishes to attend may make a reservation by calling — Charlotte R. Potter,'48, *Secretary*, BUtler 4-0512, 4611 Miller Road, Niagara Falls, N.Y.

Deceased

Oscar E. Nutter'87, February 28
Louis L. Lincoln'89, December 27, 1958
Edward S. Blackmer'91, August, 1959*
Joshua B. Blair'93, December 8, 1959
George W. Stose'93, January 30
Frederic M. Ashley'96, February 1*
E. M. Bragg'96, January 7*
George S. Hewins'96, February 20*
Victor Shaw'96, November 20, 1959*
Edward A. Brainerd'97, February 1*
Allen S. Crocker'97, February 15*
Richard T. Gifford'99, February 13
Bassett Jones'99, January 23*
Miss Rose S. Nichols'99, January 27*
Laurence M. Dalton'01, January 24*
William M. Haines'01, October 29, 1959*
William I. Sturtevant'01, December 14, 1959
Richard L. Frost'02, November 20, 1958
Philip R. Whitney'02, February 8*
Robert H. Fowle'03, February 6, 1959*
Charles Boyden'05, February 27*
James I. Banash'06, January 10*
Edwin K. Chase'06, November 16, 1958*
E. Frank Searle'06, February 10*
George M. Belcher'08, February 24*
Philip C. Brown'08, February 17*
Charles A. Gibbons, Jr.'08, February 13*
Carroll H. Shaw'10, March 11*
Howard S. Lord'11, March 8*
Edward H. Mangan'12, February 3
David F. Baker'13, September 28, 1959*
Winthrop E. Caldwell'13, June 25, 1959*
Zenas Crocker, Jr.'13, March 2*
Robert A. Lesher'13, February 11*
John B. Shedden'13, November 2, 1958*
Ronald M. Wilson'13, November 29, 1959*
Gordon D. Robinson'15, October 29, 1959
Richard S. Lyman'16, June 13, 1959
Harold Russell'16, February 10*
George L. Hall'18, December 31, 1959*
Ernest W. Hudder'18, December 6, 1959*
Clifford M. Goodrich'20, January 2, 1958*
Wendell P. Sammet'20, April 8, 1958*
Walter C. Sadler'21, October 14, 1959*
Michel P. Sinelnikoff'21, 1959*
Ramon F. Abarquez'23, March 17, 1959*
Gerald Putnam'23, January 8*
Ray N. Wheelock'25, January 13*
Basil G. Constantine'26, March 3*
Theodore B. Appel, Jr.'29, December 29, 1959*
Charles C. Gelinas'31, February 15*
James J. Kelley'33, February 1*
Bruce Poehler, Jr.'34, February 7*
John T. Cox, Jr.'36, July 3, 1959
Osmo A. P. Makkonen'48, January 31
George F. Barry'57, February 4*

*Further information in Class Notes.

Class Notes

'91

We are informed of the death last August of one of our classmates, Edward S. Blackmer. The following is taken from an item in a Brockton, Mass., newspaper: "Edward S. Blackmer, a Plymouth man, willed the bulk of his $105,000 estate to the Tuskegee, Ala., Normal and Industrial Institute. In his will Mr. Blackmer describes the Tuskegee Institute as: 'a co-educational and non-sectarian institution, founded by Booker T. Washington in 1881 for the instruction of colored students in industrial pursuits.' Mr. Blackmer attended a high school in Plymouth and was with the Class of 1891 at M.I.T. Before his retirement, he was a manufacturer of electrical goods."

In answer to my request for news a while ago, Edward wrote me a letter relating some memories and experiences. In part: "I completed only the first year at Tech due to fairly serious eye trouble. So the second year I decided to go to work. I met with modest success and finally established a small business with a partner, in the electric line. In 1923 I retired and moved to Plymouth where I have lived ever since. In 1897 I married a second cousin, Adelaide Sherman of Boston, who graduated with a degree in chemistry in 1890 from Tech. Until our marriage she taught at the Lynn high school and also at Mount Holyoke and since then (some 59 years) has been busy steering the domestic ship.

"Three years ago George Packard, the faithful secretary of the Class of 1890, looked us up and made a very pleasant call. I do want to mention that I formed a close acquaintance with David Ambrose and Charles Aiken. Fine fellows, both!"

These two glimpses of a good man's life—his industry, family affection, benevolence, intelligence, and his fellow feeling for those struggling for better things under fearful handicaps — these testify that here was one classmate who may rightly be respected, admired, and honored by the rest of us.—WILLIAM CHANNING BROWN, *Secretary*, 15 Forest Avenue, Hastings-on-Hudson, N.Y.

'95

On June 5, 1908, a meeting of the Class of '95 was held in Boston at the American House, and a constitution was adopted for the class which included: "Article V, Meetings — Class meetings will be held at the discretion of the secretary, and the annual meeting, within seven days of graduation day at the Institute." This year we can have a 65th meeting on Monday, June 13, when the M.I.T. Alumni Association holds its luncheon on the lawn of the Great Court. Reservations for a table seating 10, more or less, can be made for luncheon, with a meeting to be held there, during or after luncheon, or in one of the M.I.T. rooms if the weather is inclement.

Another section of the constitution, Article I, Membership, states: "All students who have taken a degree with the class will be considered as members, and all students who have appeared upon the records of the Institute as taking one or more subjects with the class will be considered as members except when electing otherwise." We are inserting Article I with these notes to cover any and all members who wish to join us. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.; A. D. FULLER, *Assistant Secretary*, 120 Tremont Street, Boston, Mass.

'96

Driving by Tech on the way to the Spring Flower Show at Revere Beach today (March) the roadway was quite bare of last week's snow. It was a contrast to the traffic in front of Rogers with the auto's wheels wrapped with rope and the street-cars stalled because of snow blocking the power slot in the street. Now there are trackless trolleys that cannot operate because of the ridges of snow the plows leave.

Word has come of the death of Victor Shaw of Frazier Park, Calif., on November 20, 1959. As a student in Course IV, he was on the track team and did a pole vault. For a few years Victor worked in the field of architecture, spent three months in the Alaska gold rush and took up mining, with time out to go north with Peary in 1915. He wrote several books and numerous articles. Part of his letter was published in the November 1957 notes.

"Frederic M. Ashley, 89, designer of some of the largest buildings in Los Angeles, died on February 1, at the Alta Vista Hospital in Pasadena. Born in Rochester, N.Y., he came to Los Angeles 58 years ago and retired at the age of 72. He was a member of the Sons of the American Revolution and was active in the National Guard. He leaves a brother Lewis Roscoe Ashley." The above was taken from a clipping from the *Los Angeles Times* sent by John Bixler, friend and executor. Mr. Bixler added: "He was one of the finest men I have ever known. He was like a father to Mrs. Bixler and myself." . . . From the Alumni Office has come a notice of the death of Edward M. Bragg, retired professor of naval architecture and marine engineering at the University of Michigan, on January 7, at Ann Arbor of a heart attack. He leaves his widow Miriam Wood Bragg, 1056 Ferdon Road, Ann Arbor, Mich., to whom the class has expressed its sympathy.

In Wellesley on February 20, George S. Hewins died. For 38 years he was associated with the New England Power System. During the 20 years that he was construction manager, he built hydro-electric plants and power stations throughout Vermont, New Hampshire, and Massachusetts. He was a life member of the American Society of Civil Engineers, member of the Masonic Fraternity, and of the building committee of Wellesley High School. He leaves two daughters, Mrs. Page Sanderson of Wellesley, to whom the sympathy of the class was expressed, Mrs. Robert N. Conger of Meredith, N.H., a sister and brother. — JAMES M. DRISCOLL, *Secretary*, 129 Walnut Street, Brookline 46, Mass.; HENRY R. HEDGE, *Assistant Secretary*, 105 Rockwood Street, Brookline 46, Mass.

Happy Birthday

Among the Alumni of M.I.T. now there are 82 nonagenarians and 774 octogenarians. Birthday greetings are in order during May to GEORGE W. HAMBLET'88, who is due to become 95 on the 4th; to two, seven, and thirteen who are due, respectively, to celebrate their 90th, 85th, and 80th, as listed below with dates of birth:

May, 1870 — ARTHUR W. PIERCE'91, on the 1st; and PHILIP A. WARNER'92, on the 21st.

May, 1875 — ALVAN L. DAVIS'98, on the 1st; DUDLEY M. PRAY'99, on the 9th; ARCHIBALD L. KLIEVES'01, on the 19th;

ALFRED W. LOMBARD'99, and ALFRED P. SLOAN, JR.'95, on the 23rd; EVERETT N. CURTIS'98, on the 24th; and ROBERT L. DENISON'98, on the 28th.

May, 1880 — WILLIAM C. ARSEM'01, on the 1st; HENRY H. SAYLOR'02, on the 5th; HERBERT C. MERRILL'03, on the 9th;

M. ALVA ZOOK'10, on the 10th; HERMON F. BELL'03, on the 11th; ARTHUR S. GIBBS '03, on the 13th;

LEON M. HARWOOD'03, and JAMES B. NOBLE'10, on the 14th; JAMES M. GAYLORD '07 on the 15th; HIRAM A. HILL'04, on the 20th;

GRANT S. TAYLOR'02, on the 22nd; HOWARD C. JUDSON'02, on the 28th; and ROY G. KENNEDY'06, on the 30th.

'97

We have word that Edwin A. Brainerd, I, recently died in Scarsdale, N.Y. We understand that he lived alone. . . . George Wadleigh received a clipping from his son in Rochester telling of the death of Allen Swift Crocker, II, on February 15 at his home in Pittsford. To quote: "He was at one time a staff member of Mechanics Institute, now the Rochester Institute of Technology, where he taught from 1899 to 1917. He came to Rochester to take the teaching position and at the same time opened an office at 311 Alexander Street which he maintained until being taken ill about a year ago. He remained semi-active in his business until a few months ago. During his career he was adviser to the Rochester public school system, local hospitals, and to utilities and manufacturing companies and architects here and in other parts of the country, Canada, and Mexico.

"Among the buildings on which he was consultant were the University of Rochester Medical School and the cyclotron building, the Municipal Hospital, Strong

Memorial Hospital and Eastman Theater. He also was adviser on the Delco products division plant of General Motors and was consulted by the Snider Packing Corporation in building canning plants from Indiana to New Jersey, and by Fanny Farmer in constructing plants in Detroit, Rochester, Harrisburg, Pa., New York City, and Cambridge, Mass. The largest part of his work was in power plants, heating, ventilating, air conditioning and electrical work. He drew up plans, wrote specifications and inspected work during construction.

"Before coming here he lived in East Cambridge, Mass., and Elmira. In East Cambridge he compiled catalogues and set up a chemical laboratory for Blake Knowles Pipe Company. In Elmira he was superintendent of trade schools for the New York State Reformatory. Mr. Crocker was at one time president of the Rochester Engineering Society and belonged to a national engineering society."

Don your thinking caps and be ready when you come to Cambridge in June to nominate and elect an assistant secretary as called for in the graduate class constitution. — AUGUSTUS C. LAMB, *Secretary*, 61 Hillcrest Place, Amherst, Mass.

'98

The secretary is very happy to return to writing notes for the class. For manifest reasons, they will, for a time at least, be somewhat abbreviated. First, we wish to thank Fred Jones, our assistant secretary, who so readily and efficiently pinch-hit the '98 class notes in the January and February 1960 issues of The Technology Review. In the same category, we wish to thank our indefatigable and patient president, D. W. Edgerly, for his kind and informative medical advice, and also our sister, Miss Marion L. Chapin, and our daughter, Mrs. Holden Furber, for their many acts of helpfulness during the past three years, in which we have had eye trouble.

Thanks to constant checking and suitable minor operations by a competent Boston surgeon and eye specialist and other doctors, it now seems possible to start drafting the notes again. We herewith ask the boys and girls of '98 and their descendants, in-laws, et al, to help in the good work. One other comment, we wish to thank, very specially, those who kindly sent us Christmas and New Year's greetings, and good wishes for recovery from the eye trouble.

At the Alumni Day luncheon in June, 1959, Fred Jone's daughter Audrey sat next to the secretary's sister and was bubbling over with enthusiasm concerning a trip to Europe, which she and her husband had planned for the coming summer. Well, the trip came off, and Audrey, who has a writing facility, wrote it up in a six-page letter, and mailed it to friends as a Christmas greeting. We wish that we could include this interesting description in the '98 class notes, for doubtless many readers of The Review have visited places described by Audrey. However, at Fred's suggestion, she has been kind enough to furnish a synopsis of the trip, which is appended below:

"Fred Jones' daughter and her husband, Harold Jones (she married a JONES!), enjoyed a two-months' tour in Europe last summer: England, Holland, Germany, Austria, Switzerland, and France. It was their first trip, and everything was thrilling, including sailing aboard the *Nieuw Amsterdam* and the *Statendam*. In their long Christmas letter, they 'loved each country and the people'; they noted variations in scenery and customs; they listed and described sightseeing excursions. They docked at Southampton, spent four days in London and surrounding countryside, with its historical interest, castles, villages, famous schools and great manor houses. They had a good channel crossing to the hardy little country of Holland, with its handsome fair-haired people. Amsterdam, Marken, and Volendam fascinated them. The first stop in Germany was Cologne, with its impressive cathedral opposite their hotel window. On to Coblenz; a steamer up the Rhine with its ancient castles standing midst vineyards; friends at Wiesbaden; charm at Heidelburg on the Neckar River; ride through the Black Forest; a stay at historical Munich; a day at Garmisch and Oberammergau. Austria's only stop was Tyrolean Innsbruck, and up to the peak of the Hafelekar. Breathtaking Switzerland's itinerary was lovely Lucerne, over the Passes to Interlaken, several days at quaint Zermatt on the slopes of the Matterhorn, beautiful Geneva and hundreds of international organizations. Ten days in Paris, missing nothing! — and the return by ship from Le Havre. They report 500 colored slides of the trip and happy memories of places with names familiar to the world."

Thanks, Audrey, for your fine write-up and synopsis of your trip. For those of us who have visited Europe it brought back many fond memories.

Our distinguished classmate, Roger W. Babson, founded in the late 'Forties the Gravity Research Foundation. The president of the Foundation is George W. Rideout, well known to members of '98. The following announcement will be of interest: "In 1960 for the 11th year the trustees are offering five awards for short essays for the purpose of stimulating thought and encouraging work on harnessing gravity. The stipulations follow: 1. These awards will be made by us on June 1, 1960, for the best 1500 word essays on the possibilities of discovering (a) some partial insulator, reflector or absorber of gravity, or (b) some alloy or other substance, the atoms of which can be agitated or rearranged by gravity to throw off heat, or (c) some other reasonable method of harnessing, controlling, or neutralizing gravity. 2. There are five awards, $1,000, $300, $200, $150, and $100. 3-7. Other stipulations."

In view of the present world-wide interest in satellites and space exploration, this activity of our classmate and of Mr. Rideout is outstandingly noteworthy. — EDWARD S. CHAPIN, *Secretary*, Hotel Vendome, 160 Commonwealth Avenue, Boston 16, Mass.; FREDERIC A. JONES, *Assistant Secretary*, 286 Chestnut Hill Road, Brighton, Mass.

'99

Your secretary has been basking in the Florida sunshine (when it isn't raining) since December 12. I took the plane to Tampa and arrived three hours late due to 75 mph winds. My son was waiting for me and drove me eastward across the state to Melbourne, where he lives with his wife and four children. On the way we passed through Haynes City where I called on Dr. B. L. Arms, now 90 years old, who was my assistant director in the Boston Health Laboratory from 1904-1909.

One of my diversions was to watch the missiles being launched from Cape Canaveral across the bay. On February 20 I went to St. Petersburg. Shall be back in New England about April 1.

Edwin A. Packard has been sick since January 19, 1958, but was able to fly to Boston that summer. However, since the fall of 1958 he has been confined to his home and is unable to do any walking. In spite of his condition he retains his sense of humor and enjoys company, although many times he is unable to do much talking. He enjoys his home and is having hospital care there. He is most fortunate to be in Florida with present weather conditions (March).

According to the *Boston Herald*, Miss Rose S. Nichols, IV, of 55 Mt. Vernon Street, Boston, died on January 27, 1960. No further information at hand. . . . Bassett Jones of New York City died on January 23, according to a newspaper clipping. — BURT R. RICKARDS, *Secretary*, 349 West Emerson Street, Melrose 76, Mass.; PERCY W. WITHERELL, *Assistant Secretary*, 84 Prince Street, Jamaica Plain 30, Mass.

'01

I have received word from Mrs. Haines of the death of her husband, William M. Haines, VI, on October 29, 1959, in Maryland, after an extended illness. I have no other information.

Stanley Sears of Washington, D. C., says: "Retired at the childlike age of 70 from the income tax unit of the Treasury Department where I had been chief of the metals section in the mining division. Activities have been mostly golfing until my joints began to squeak so I turned in my membership. Nowadays, a bit of walking about this pleasant neighborhood, watching TV occasionally, and reading seem to fulfill my ambitions." . . . President Ed Davis is still working eight to five at his historical Scovill Ensemble. . . . Ed Beckwith, in Garrison, N.Y., has retired from active work and divides his time between Garrison and the Chemists Club in New York City. . . . Joe Catlin, in Plainfield, N.J., is president and treasurer of the Virkotype Corporation. This company manufactures raised printing machines and the many chemicals used in this process. Most business cards and wedding invitations are produced by this process. He spends part of his time in his home in Venice, Fla. He likes to swim.

Ed Brigham, from Brookline, Mass., says: "There's nothing much the matter

with me except old age, unbalanced budgets, high prices, and contemplation of rotten politicians. I hope that the new political party ushered in by the rally in Chicago last October will, at least, make plenty of trouble for the old parties." . . . Frederick W. Smith, of Towson, Md., simply notes that he has retired. . . . Anthony Peters, of Westwood, Mass., writes: "We don't want to hear about the other fellow's aches and pains, we've got enough of our own. But there's one safe subject and that's church work. Our little town of 10,000 has just finished a $72,000 parish house for the United Church, and now have bought the old 1812 parsonage which means $25,000 more. In the steeple of the old 1808 church I found some old wooden organ pipes. I have been making all sorts of gifts for our church fairs — plant trays, lamp bases, pencil trays, and so on." . . . W. G. Blauvelt of Wellesley Hills, Mass., sends nothing but his name and address.

From Bob Derby, Williamstown, Mass., dated February 10: "I have just returned from a six weeks' trip to the Far East from San Francisco during which I visited the Philippines, Hong Kong, and Japan for a few days. It was an interesting cruise to a part of the world where I had not been previously. I now am parked here in Williamstown for the remainder of the winter as I have exhausted my financial traveling quota for the year." . . . Richard E. Dow of Hamburg, N.Y.: "Having been retired 14 years and living quietly at home with Mrs. Dow, nothing of particular interest has happened that would be suitable for the class notes. However, I'm hoping to be around in 1961 and be present at our class reunion." — THEODORE H. TAFT, *Secretary*, Box 124, Jaffrey, N.H.

'02

Dan Patch and I had been wondering, since the last of January, what had become of John Marvin who was on a luxury cruise to South American ports. Finally Dan received the following letter from John from the Abington Hospital, Abington, Pa., dated March 6: "You probably are wondering why you have not heard from me about my cruise around South America, and certainly you didn't expect to hear from me from the above address. We left New York at 12.05 A.M., December 11, with a grand send-off of confetti. First stop had been scheduled for Havana, Cuba, but due to Mr. Castro's attitude, we went to Curacao instead. Had a grand trip through the canal. Spent a day at the Atlantic entrance and saw ruins of the old Spanish fort that the English pirate Morgan razed. It was never rebuilt, so it is quite picturesque. Sailed down the west coast of South America. Stopped at Lima and saw ruins of the Inca civilization. I could not fly over the mountains to Cuzco due to the high altitude and an unpressurized plane.

"Spent Christmas at Juan Fernandez Islands (Robinson Crusoe Islands) but could not land — sea too rough for tender to dock. Instead the captain took us around the island. Stopped at various cities in Chile and enjoyed the shore trips greatly, especially an affair put on for the cruise people by the Chilean Cavalry School. Not many cavalry schools left in the world now but this one is kept up by the top Chilean society. We were entertained at a most luxurious officers' club. Stopped also at Punta Arenas, the southernmost post office on this hemisphere, on the Strait of Magellan. I was amazed to find that the largest sheep country in the world is Tierra del Fuego on the south side of the Strait. From there we went to the Falkland Islands (English) about 350 miles east of the Strait.

"We were approaching the Islands and I had just been to the ship's theater to listen to a lecture about their history, and was on the way to my stateroom to get ready for lunch. Took a different route than usual, through the lounge, and stepped out instead of down at a place where I did not know a step existed. I fell. I don't think I would have hurt myself had not one of my canes lodged one end on the step and the other end on the floor. I fell on it. It was stronger than my old bone. That was January 4. I was in the ship's hospital three days. They made a traction splint for me. We docked at Buenos Aires on the 7th, and they took me to a Spanish hospital for the night. The next morning I was put on a jet plane for New York.

"My daughter met me at Idlewild with an ambulance and brought me here. They set the bone on Monday and for the last eight weeks I have been on my back in a cast, but expect to be out of the cast in one more week. In another month I hope to be able to go to a convalescent home for several weeks and then home. So that is why you have not heard from me. But I had one grand time until the 'splash.'"

Thanks to letters sent by Dan to Bill Kellogg and Russell Lowe congratulating them on becoming members of the octogenarian club this month (March), we learn that both are in good health and each busy in his own way. Bill writes: "My own state is flourishing. I seem to feel as well as I ever did and am certainly as busy as I ever was. The life and climate here on the eastern shore are conducive to longevity and I am taking full advantage of it."

Wish I could continue on this note but a clipping from the *Boston Traveler* tells of the death of Philip R. Whitney on February 8 at his home in Moylan, Pa. Whitney prepared for M.I.T. at the Newton, Mass., high school and was graduated from Course IV, architecture. In 1904 he became associated with the University of Pennsylvania as instructor in architecture and he continued there until his retirement, due to ill health, in 1934. At the time of his retirement he was professor of graphic arts in the School of Fine Arts at the university. Both Whitney and his wife were accomplished artists and painted many scenes near their summer residence in Nantucket. He leaves a son, Reed Whitney of Fort Lauderdale, Fla., a daughter, Mrs. Alpa Whitney Shelton of Needham, Mass., and four grandchildren. Memorial services were held in the Episcopal Church of St. John the Evangelist, Baltimore Pike, Lansdowne, Pa.

On March 5 Lew Moore wrote: "It was 43 degrees here — Vero Beach, Fla. — this morning, but we are not, repeat not, snowbound." Eastern Massachusetts certainly was and there is no suitable retort. Lew put in a heating plant last fall and an air conditioning plant this spring. He is planning to attend his 60th reunion at Wisconsin in June and hopes to get to Cambridge also. — BURTON G. PHILBRICK, *Secretary*, 18 Ocean Avenue, Salem, Mass.

'03

Robert Halsey Fowle died February 6, 1959, after a year of illness. He was born July 1, 1878, in Michigamme, Mich., where his father was superintendent of an ore mine. Rob was tutored at home until he was 12 when the family moved to Marquette, Mich. After graduating from a high school in Marquette, he went to M.I.T. but family financial reverses made it necessary for him to leave school and support himself. At this time his boyhood love of sailing came to his aid, for he found work as an apprentice to Starling Burgess who at that time was designing large sailing sloops in Boston. Rob spent his weekends as part of the crew sailing from Marblehead.

In 1904 he married Emily Watson of Marquette. They lived in Newport News, Va., and then for several years in Quincy, Mass., until World War I when they moved to Montreal where Rob worked on submarines. After the war they moved to Portsmouth, N.H., then finally to New London in 1932 where he continued his submarine work until he retired. His wife died in 1957. There were no children.

Our genial class agent, Robert J. King, again has been honored in being asked to become chairman of the Board of Trustees of Piedmont College. — LEROY B. GOULD, *Secretary*, 36 Oxford Road, Newton Center 59, Mass.; AUGUSTUS H. EUSTIS, *Treasurer*, 131 Tremont Street, Boston, Mass.

'04

For the third month in a row we are indebted to Maynard Holcombe for one of the few items of news which have come our way. His report on the annual Florida reunion is as follows: "February 22 — Well here we are at the old Haven Hotel, four '04ites with wives and at least three more in spirit. There was a good lunch, nicely served, in an atmosphere of animated seniority made famous by Esther Williams in her movie featuring Cypress Gardens a few years ago. In the room containing the grand piano — the scene of the elderly ladies' vocal triumph in the movie — the piano and the staircase are the same, and the same group of grandmothers are playing cards amid much the same floral decorations in celebration of Washington's birthday (the only celebration of the day in this part of Florida as not even the banks are closed in the deep south in respect to Lincoln and Washington, although the postmen get the day off). No better setting could be desired for our gathering of ambulatory class survivors. Those present in addition to Guy Palmer and Louise, our hosts, are

Lewis and Mary Newell, Al and Ethel Coupe, and Maynard and Martha Holcombe; in spirit, Frank Davis, Rich Sheafe, and Currier and Carolyn Lang who are wintering at St. Thomas while planning for passive festivities at Cambridge next June."

Up to March 3 Boston had been competing with Florida as a winter resort. On that date the streets were completely bare of snow and the Charles River was free of ice. The total snowfall for the winter had been less than six inches and the ground hog on February 2 had prophesied that winter was about over. By bedtime on March 4 there were over 17 inches of snow in the city and about two feet in the suburbs which the weatherman says was an all time record for one storm. As these notes are written (March 8) the streets are still a shambles and no public school sessions will be held. With the expenditure of an estimated half-million dollars and a big assist from old sol the city hopes to be in running order within a few days. In spite of the above the walk from 120 Beacon Street to M.I.T. this morning was pleasant, interesting, and invigorating.

The March issue of The Review takes note of the fact that Dave Sutton and Charlie Egerton have passed the 80th milestone. Congratulations to both of them. . . . We recently mentioned in these notes that Frank Davis and wife were planning a Caribbean cruise on the English ship *Empress*. A card from Frank reports a pleasant trip in progress, with calls at various islands and mainland ports including one at St. Thomas and a pleasant visit with the Langs. . . . A recent note from the Langs says their new winter home there has worked out very satisfactorily but Norwalk, Conn., will look good to them when they return in April.

When you read these notes Alumni Day will be only about a month ahead. Even though we are having no formal reunion this year it would be pleasant to have a sizable group at some of the festivities. Why not plan to attend? We suggest the luncheon for those who are cutting out evening events.

The above had been delivered to the Review office when a welcome letter was received from Harry Rollins. He reports that immediately after January 1, he and Glendora with a La Jolla friend joined three other members of the family in New York and flew to the Virgin Islands for a two-week visit which was greatly enjoyed. They tried without success to locate the Langs until by chance the Rollins' daughter Florence was introduced to them on the beach. This was followed by a good '04 reunion. Harry spoke highly of the Langs' new house. To quote him: "The house is beautiful and is wonderfully situated high above the blue Caribbean. It is functional as well as beautiful and was carefully designed, as you would expect from an '04 man."

In the November issue we mentioned that Harry and Glendora had visited England. Harry reports as follows: "Our trip last summer was most enjoyable, especially the latter part when we took over the Trescher car in London. Bob flew back to Philadelphia the next morning, but we spent five days in London.

"Our auto trip was just what we had always hoped to do sometime. We chose four or five places to stay for four or five days each, and then drove out into the countryside taking the side roads so as to see the quaint little places. We also enjoyed going through a good many of the Trust Houses which are open to the public on certain days. Most impressive of all was Blenheim Palace, the birthplace of Winston Churchill; it probably is the Versailles of England. We drove, on the wrong side of the road, for 1500 miles and did not find it too hard to do. Only when there was no one else on the road was I inclined to get onto the right side of the road; no tickets, however." — CARLE R. HAYWARD, *Secretary*, Room 35-304, M.I.T.; EUGENE H. RUSSELL, JR., *Treasurer*, 82 Devonshire Street, Boston, Mass.

'05

Returns from the questionnaires regarding our 55th reunion show a considerable majority in favor of the June 10-12 date, which will allow us to return to Boston on Sunday in time for Alumni Day on June 13. While those who returned the questionnaires did not positively commit themselves, those voting "expect to attend" include the Beermans, the Carharts, Lovejoys, Chestermans, Bartletts, Smarts, Babcocks, Crowells, Nyes, Tompsons, Simpsons, Parkers, Barriers, Balls, Kenways, Towers, Files, Prescotts, Barrons, Helperns and Gecklers; also Bob McLean, Percy Goodale, Herman Gammons, Gil Joslin, George Fuller, Walter Eichler, Henry Buff, Wallace Taylor, Harry Charlesworth, John Damon, with a "hope to" from Arthur Manson, and a "possibly" from the Roy Allens. Bill Ball has accepted the chairmanship of the reunion committee.

Through press clippings received from Bert Files and Gib Tower we are informed that Gib, officially, if not finally, retired from the Fore River Shipyard on February 25, 1960, just 10 days after his 75th birthday. The clippings are too long to quote entirely, but I shall quote several paragraphs: "Gilbert S. Tower of 35 North Main Street, Cohasset, who retires today from the Navy's technical service at Fore River Shipyard after nearly 24 years, was honored last night at a retirement dinner attended by 60 colleagues in Walsh's restaurant, North Quincy. Secretary of the Navy William Franke sent a tribute from Washington to Mr. Tower which was read by Captain Edgar H. Batcheller, USN, the Navy's supervisor of shipbuilding at Fore River. Mrs. Tower was a special guest.

"Fifty-four years ago Mr. Tower graduated as a naval architect from the Massachusetts Institute of Technology, and later taught naval officers at M.I.T. Among his students were Vice Admiral Jerry Land, Vice Admiral Edward L. Cochrane and Rear Admiral Howard Vickery, all of whom became outstanding builders of merchant and military ships. Honoring Mr. Tower, supervisor of hull scientific work, including calculations, damage control, and launchings, were Captain Batcheller, Captain C. Warren Smalzel, executive officer, Commander Carlton F. Bryant, Jr., planning and design officer and Hamin Gurvitch, chief naval architect. Guests present included Edward T. Dobbyn, retired chief naval architect, who was Mr. Tower's civilian supervisor for many years; William M. Keevey, retired hull inspector, who worked with Mr. Tower in the Boston Naval Shipyard, and Frederick Fenger of Cohasset, retired boat designer and friend of Mr. Tower.

"In the summer of 1904, Mr. Tower worked at Fore River as a rivet hole reamer. Later he switched to fire protection engineering in Boston. From 1919 to 1923 he was mechanical engineer of the Panama Canal in Balboa, Canal Zone. Then he resumed fire protection engineering until 1939 when he became chief of the Cohasset Fire Department. He is past president of the Cohasset Historical Society. Mr. Tower returned to shipbuilding in World War II for the Navy at Fore River. For many years he was a member of Quincy Local 7, AFL-CIO Federation of Technical Engineers Union." Gib writes: "The people in the office also gave me a party with a good size check for an auto trip."

Have a letter from Ben Lindsly from Phoenix, Ariz., to which place he and Leslie have apparently returned for retirement. He claims they are very busy eating, sleeping, playing shuffleboard and pingpong. He reminisces as follows: "Phoenix claims a population of 350,000 and the forecast is 1,000,000 in 10 years. I remember when the town had 50,000 residents — that was in territorial days back in 1907. I had an office in El Paso, Texas, and was selling mining machinery in Arizona, New Mexico, and northern Mexico. Business was good, but I had a chance to sell out at a fair profit, in 1909 or 1910, and then became engaged in actual mining until the outbreak of World War I. At that time I had a contract to drive a tunnel at Ray, Ariz. Due to conditions caused by the war I had to give up mining and start all over again (San Joaquin Valley, Calif.). I became a petroleum engineer, and eventually was recognized in *Who's Who in Engineering*. Will be leaving this place March 1, and plan to take a month or two touring Arizona. However, will arrange to have mail forwarded."

The Casey Turners in sending regrets on not being able to attend the June reunion, explain (Helen reporting): "Casey has had a difficult time since last June, in and out of the hospital, and ending up with a bad bursitis in his shoulder. He has not been out since Christmas, but we are happy to say that he is slowly improving though he will have to take it easy for some time. If Casey's improvement does progress more rapidly as time goes on, and we should be able to be in the East, he suggests June 10-11-12 prior to Alumni Day as the best time. As for location, we think Cape Cod would be delightful."

Roy Lovejoy writes from Belleair, Fla., where he and Andrea stopped off for a few days to "get some pep from the sun" en route to Andrea's old home, New Orleans. Roy, who had an emergency operation on August 18, reports that after seven months of recuperation he is "still a mess" meaning, I am sure that it takes time to get back to normal. I'm sure we will see him at the reunion in full vigor after some New England May sunshine has had a

good look at him. His address in New Orleans will be 7329 Oak Street, in case you want to cheer him up.

While in Boston last week I talked with John Ayer, who underwent abdominal surgery early in February. I got much the same story as from Roy Lovejoy: "The doctor says I'm doing fine but I don't feel that way." Cheer up, John. Once you get to the farm, you'll spring back to your old vigor. . . . At the same time I learned that Doc Lewis is sailing on April 23 for London, where he will give a paper on petroleum (lots of breadth here). . . . I saw Bert Files, who, in spite of his frequent jokes about retirement, is still working at his old desk, apparently healthy and happy.

Noticed in the *Boston Herald* that Charles Boyden, who was with us in our Freshman year, died on February 27, 1960. — FRED W. GOLDTHWAIT, *Secretary-Treasurer,* Box 32, Center Sandwich, N. H.; GILBERT S. TOWER, *Assistant Secretary-Treasurer,* 35 North Main Street, Cohasset, Mass.

'06

Your class officers observed leap year by getting together at the Faculty Club on February 29 before the 343rd meeting of the Alumni Council on which class agent Chase represents the Albany club, your secretary is the class representative, and President Kidder was a guest. We discussed the class showing in the current and past Alumni Funds, also various tentative plans and ideas for our 55th in 1961. Have YOU any suggestions? Please do and send them along pronto so that all the ideas can be hashed over on Alumni Day next month, which is your chance to see and hear what's doing if you will join us then on campus.

In the November '59 notes I reported receipt of a card in September from Rome from Jim Banash who with Ceil was doing Europe by air. Jim had ended his message: "I hope we'll meet again one of these days," but we won't here, for Jim passed away on January 10 in Los Angeles, notice having come through the Alumni Office from Mrs. Banash. Jim and I and George Furness — who died some years ago — were the only ones in our class who took electrochemistry which was then Option 3 in Course VIII. That course was started in 1903 when it had one graduate. A few years later it became Course XIV, which was discontinued in June 7, 1940, became meteorology for five years, and since then has been economics and engineering. Fortunately our diplomas put us in Course VIII which has maintained its identity but I often wonder about the electrochems of Course XIV. Jim and I became close friends, spent part of one summer together as "gondoliers" taking visitors around the "lagoon" in Paragon Park at Nantasket, and visited in each other's homes.

James Ira Banash was born in Roxbury, July 20, 1885, prepared at Boston Latin, entered and graduated with us. He was in the Tech Show "Applied Mechanics," a member of the Electrical Engineering Society, Chemical Society, Chess Club, and his thesis was entitled "Determination of Fusion Temperatures of Certain Refractory Oxides." The first year out Jim and I were together as assistants in Professor Laws' electrical measuring instruments lab, and I recall the fun we had with the oscillograph, then relatively new. Since then I don't believe we saw each other again, although we kept in touch at infrequent intervals by correspondence. I will have further details on Jim's career in the June issue.

The belated report of another death came through the Alumni Office in February, Edwin Kirke Chase, III, having passed away November 16, 1958, in Burbank, Calif. As E. K. is not in the Portfolio or the 1906 class history, and as I have no obituary to use, this record of his career is rather incomplete. From the file card and other sources I find that his home address was in Denver and after his four years with us he evidently returned there. By 1914 he was assistant superintendent of the lead smelter of the American Smelting and Refining Company at Durango, Colo., and for a few years, of the Pueblo smelter. From 1925 to date most of the addresses are in Los Angeles where he evidently had an office as a consulting engineer. He resided in Glendale, and more recently in Burbank. Additional information about E. K., his family, his career, and so forth, will be appreciated.

Thanks to our good correspondent, Percy Tillson, VI, for reporting the death on February 10 of Ephraim Frank Searle, who was with us only Freshman year as a special. His home was in Lawrence, Mass., and Percy said he was his high school classmate, as was our top golfer Allyn Taylor. The available record indicates that Frank Searle always lived and worked in Lawrence. . . . See you June 13? — EDWARD B. ROWE, *Secretary-Treasurer,* 11 Cushing Road, Wellesley Hills 81, Mass.

'07

We are afraid that these notes will have to be rather skimpy. Our secretary, Phil Walker, suffered a bad spell on February 28 and is in the hospital in Whitinsville. The trouble is not yet definitely diagnosed. Three cardiograms show nothing and further tests are in the offing. As of March 10, he seemed to feel fine and was allowed to take a walk in the corridors so he seems to be headed in the right direction. Apparently Phil's multifarious duties — at the plant, his church interests, educational work and possibly class affairs — have finally caught up with him. Don Robbins tells me that he and his car got stuck in Uxbridge a few weeks ago and who should come along but Phil in a company pick-up and got him going again. We can only hope that Phil will soon be out and around. We all need him.

Don Robbins, Jr., Vice-president of Singer Sewing Machine Company, in charge of European and African operations, appeared on a WGBH television panel presentation of *Decisions 1960,* about three weeks ago, the subject for the evening being "Divided Europe — Crisis or Co-operation." Don, Jr., responded to several questions about the common market and the "outer seven." We are willing to bet that he did a better job on them than his dad would have.

In the January issue of *Architect and Builder* there appears the first of four articles by E. Stanley Wires on the history and development of decorative tiles. In this issue he discusses the ancient tiles of the Near East, the tiles of India, northern Africa, and Spain, the medieval and inlaid tiles of Europe, and the Renaissance painted tiles. The article is accompanied by excellent illustrations. Even to a prosaic engineer they are interesting and to one who knows and appreciates the art, the reading of the articles is a must. (No payola here.)

Howard Marvin reports that he has moved from Stepney, Conn., and that his new address is P. O. Box 715, Sandy Hook, Conn. . . . In response to Phil's suggestion in class notes, he has received a card from Tucky Noyes, now retired and living in Falmouth Foreside, Maine. He reports that he is well and happy. In April, The Review *erroneously* reported that our class would have a reunion this year at Oyster Harbors Club. It is not to be until June 8 and 10, 1962. — PHIL WALKER, *Secretary and Treasurer,* 18 Summit Street, Whitinsville, Mass.; GARDNER S. GOULD, *Assistant Secretary,* 409 Highland Street, Newtonville 60, Mass.

'08

The third dinner meeting of the 1959-1960 season was held at the M.I.T. Faculty Club, Cambridge, Mass., on Wednesday, March 9, 1960, at 6 P.M. In spite of the deep snow, winter colds, and the allure of Florida, we had 12 at dinner, as Bunny Ames, Bill Booth, Nick Carter, Leslie Ellis, George Freethy, Sam Hatch, Bill Medlicott and Mesdames Ames, Ellis, Freethy, Hatch, and Medlicott made it. Joe and Eudora Wattles were in Florida as was Miles Sampson; Myron and Gladys Davis were in Mexico City; the Sewells and Nortons were snowbound; and Fred Cole was recovering from the flu. We assembled as usual in the cocktail lounge, enjoying appetizers, while awaiting latecomers. About 6:30 P.M. we adjourned to private dining room No. 1 for dinner. Since Joe Wattles wasn't there with his Kodachromes, we started home somewhat earlier than usual, which was good as driving conditions were poor that evening. Our fourth and final dinner meeting of the season will be held at the M.I.T. Faculty Club, Cambridge, Mass., on Wednesday, May 11, 1960, at 6 P.M.

Our 52nd reunion will be held at the Melrose Inn, Harwichport, Mass., on the Cape, June 10, 11, and 12, returning to Boston on June 13 for Alumni Day on campus at M.I.T. Please reply promptly to the reunion committee's letters, as it will help in making plans. Remember, ladies are invited. A weekend on the Cape with the old gang should not be missed. Try to make it.

We are sorry to report the deaths of several classmates. Charlie Gibbons died

at his home in Savannah, Ga., on February 13, 1960. He was buried at Taunton, Mass., his home town, on February 18, 1960. . . . Philip C. Brown died on February 17, 1960. A newspaper clipping from Dover, N.H., reports the following: "Philip C. Brown, 74, of 98 Silver Street, died of coronary thrombosis, Wednesday, February 17, at Clearwater Beach, Fla. He was born in Dover, graduated from Harvard College in 1907, and from the Massachusetts Institute of Technology in 1908. He was for many years president of the I. B. Williams and Sons, leather belting manufacturers of Dover, and was a past president of the American Leather Belting Association.

"He served for a number of years on the Dover water board, and was a director of both the Strafford National Bank and the Strafford Savings Bank of Dover. Mr. Brown leaves his wife, Mrs. Marguerite Williams Brown; a son Frank Bartlett Williams Brown of Melrose, Mass.; two daughters, Dr. Mary-Phyllis Wentworth of Boston and Mrs. Fred H. Allen, Jr., of Newton Center, Mass.; and seven grandchildren.

George M. Belcher, who served so faithfully as our class agent for many years, died February 24, 1960, at the Cape Cod Hospital, Hyannis, Mass. The report from the *Boston Herald* will be of interest: "George M. Belcher, 73, of Parallel Street, Harwich Center, a retired research engineer for United Shoe Machinery Corporation, died Wednesday at Cape Cod Hospital. He was born in Malden and was graduated from Massachusetts Institute of Technology in 1908. For the past 14 years he served as class agent. Mr. Belcher retired in 1952 from his United Shoe position after serving 20 years with that firm.

"He was chairman of the board of trustees of the Old First Congregational Church here, and a past president of the Social Union. He leaves his wife, Edith; a daughter, Mrs. Parker Brownell of Marblehead; and two brothers, Harold B. of Melrose and Edward B. of Portland, Maine." Bill Booth, Nick Carter, Leslie and Helen Ellis, and George Freethy attended the funeral. We are going to miss George. — H. LESTON CARTER, *Secretary,* 14 Roslyn Road, Waban 68, Mass.; LESLIE B. ELLIS, *Treasurer and Assistant Secretary,* 230 Melrose Street, Melrose 76, Mass.

'10

It is with sorrow that I announce the death of Carroll Shaw on March 11. Carroll Benton called me from Brooklyn to tell me the sad news. Carroll Shaw and his wife were on an auto trip to Arizona for a vacation. They had stopped at Alpine, Texas, at a motel. He was stricken with a heart attack in the evening and passed away before he could be taken to a hospital in El Paso. The following is from the Brockton *Enterprise:* "Mr. Shaw was born in Abington, the son of Frank E. and Hattie (Beal) Shaw and graduated from Abington High School in 1906. He entered Massachusetts Institute of Technology and graduated in 1910, and served with numerous engineering firms until his entry into the army during World War I. He became a major in the U.S. Army Engineers.

"After the war Mr. Shaw was employed for many years by the New York Edison Company, before serving as a consulting engineer and eventually founding his own business. Mr. Shaw was a very successful electrical engineer and was considered one of the country's top authorities on underground cable. He returned to Abington to make his home about six years ago and was a member of the John Cutler Lodge, AF and AM. Survivors include his wife and two children, Alan of Denver, Colo., and Mrs. Raymond G. McCarthy of Hamden, Conn., and four granddaughters."

Occasionally by indirect means I receive information of classmates from whom I have had no information for many years. Recently I was given a copy of the Delta Upsilon *Quarterly* and therein was a picture of H. Norris Harrison who is second vice-president of his fraternity. I understand he is now chairman of the board of Charles F. Killam and Company of Philadelphia, Pa.

By the time you read these notes the program for our 50th reunion will have been received and the committee will be ready to welcome those who will attend. Hal Manson has the reunion committee meeting regularly which requires John Babcock to make frequent trips to Boston from Portland, Maine. — HERBERT S. CLEVERDON, *Secretary,* 120 Tremont Street, Boston, Mass.

'11

Acting president Howard Williams wrote that he has cleared with the Institute, through Henry Kane, that our Alumni Fund contributions be earmarked into a scholarship fund to be known as the "Class of 1911 Memorial to Orville B. Denison." . . . A brochure from the Chicago chapter of the American Society for Metals showed a schedule of sessions held in March and April, 1960, in Chicago and Northlake, Ill., presented as "The 1959-1960 Marcus A. Grossmann Educational Series — How to get the most out of your Materials." Our Marcus Grossmann,III, to whom this was dedicated, passed away in May, 1952, after a very active life with Central Alloy Steel Corporation, Republic Research Corporation, Carnegie Illinois Steel Company, and U. S. Steel Corporation.

Roy MacPherson,II, and your secretary represented 1911 at the dinner meeting of the M.I.T. Club of Framingham, Mass., on February 16, 1960, at Armand's Beacon Terrace. The speaker was Dr. Irwin Sizer, head of the Biology Department at M.I.T. since 1956. He received a B. A. from Brown University in 1931, and his Ph.D. in psychology and biochemistry from Rutgers University in 1935. He became an instructor at M.I.T. in 1935, and advanced by degrees to become full professor in 1956. The subject of his address was "Molecular Biology and Medicine." He described his associates at M.I.T. as a group of molecular biologists interested in molecules and living cells, their behavior, the study of inter-relationships that exist in the fields of physics, chemistry, mathematics, and biology, and a study of these living materials. While the study of these relationships are relatively new, Dr. Sizer stated that he expects that within our lifetime we shall see many practical applications of the results of these molecular investigations, particularly in the field of medicine.

A letter from Aleck Yereance in March said: "I congratulate you on the honor of carrying on the job Dennie handled so well. Don's resignation is a real blow. He has done a noble job despite physical handicaps, and we should be grateful to him for his courage and activity. Early in April Mrs. Yereance and I plan the usual migration to the Cape, so if the reunion committee decides on a Cape location for the event, I'll be glad to help in any way I can. The address is 27 Old Wharf Road, Harwichport, Mass. At the last local gathering of retired Army personnel I was happy to meet Phil Kerr, and to learn that he lives only a few blocks from us here. We plan to get together again soon." Aleck and Phil both live in Arlington, Va.

A very interesting and enlightening class reunion manual was sent last February to Obie Clark, chairman of our coming reunion, and to your secretary by Fred Lehmann'51, Assistant Secretary to the Alumni Association. It gives, in great detail, instructions for planning, arranging, and operating a reunion.

Harold Stowell Lord, II, of 9 Lincoln Street, Arlington, Mass., died March 8, 1960, after three weeks of complications following a heart attack. He leaves his wife Mary, two daughters, Mrs. Vernon Lindahl of Melrose and Miss Ann Flint Lord of Hartford, Conn., and three grandchildren. The funeral service was at the Douglass Memorial Chapel in Lexington, Mass., at noon on the 10th, followed by interment with military honors at Athol, Mass. Classmates attending were Henry Dolliver, Carl Richmond, and Gordon Glazier. Mrs. Richmond and Mrs. Glazier were also present. Gordon and Harold were very close friends and associates. Gordon wrote the following colorful story of Harold's life:

"Harold, generally known since World War II as the Major, was born in Athol, January 15, 1888, and prepared for Tech at local schools. At the Institute he was a keen student. After graduation he put himself through a practical apprenticeship in several nationally-known machine shops, then entered the employ of the Ruggles Machine Company in Poultney, Vt., resigning to enter the first Plattsburg officers' training camp. He was commissioned first lieutenant in the Army Engineers Reserve. From then and throughout his life the Army engineers was his main interest. During World War I he was promoted to captain, and before World War II he was promoted to major. He was on active service throughout both world wars, and whatever his job was in peacetime he kept up with all the reserve requirements. While he did not himself request it, his family and close friends thought his military funeral was particularly fitting.

"On December 29, 1917, he married Mary E. Durfee of Poultney, Vt., and took his bride to Washington, where he was assigned to duty at the Army Engineers Depot. Following World War I he joined the engineering staff of Pratt and Whitney in Hartford, Conn., where he remained until 1925 when he became associated with Macomber and West in Boston. From the beginning of the 'Thirties until his retirement in 1955, except for his tour of active duty in World War II, he was executive assistant in various companies under the management of Gordon Glazier. This included the President Suspender Company, Jones McDuffie and Stratton Corporation, Wiggin Terminals, and Hollingsworth and Whitney Company. He was stationed in Boston, but his assignments kept him much of the time in northern Maine or southern Alabama. During World War II he served 15 months at the Army Engineers Depot at Columbus, Ohio, and later in Sydney, Australia. In the last six months of the war, he was Army representative at Perth, Australia, the only Army officer among a considerable group of Navy personnel. In Sydney Harold did his best to get 1911's George Kenney to send him to the fighting front, but George told him he was too old, and that he had generals young enough to be his son.

"Since his retirement Harold worked on local charity drives. At the time he was stricken he was the representative for his district for the M.I.T. Alumni Fund. His first conscious thought after his heart attack had to do with the carrying on of this campaign. He told his wife to lose no time, to collect his papers and take them to headquarters with the word of his unexpected incapacity." Our heartfelt sympathy and best wishes for the future to Mary Lord and her daughters and their families.

Change of address: Stafford A. Francis, IV, P.O. Box 1014, Brooksville, Fla. — HENRY F. DOLLIVER, *Secretary*, 10 Bellevue Road, Belmont 78, Mass.; JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

'12

The *Boston Herald* reported a testimonial dinner for Milton Kahn in honor of his 70th birthday. Senator Saltonstall was the principal speaker and spoke at length on the prominent part that Milton has played in charitable undertakings in Boston and vicinity. The Milton Kahn Chair in community organization will be established at the Brandeis University graduate school for advanced studies in social welfare. Milton is president of the Kahn Paper Company in Boston but finds time to give generously of his services to all kinds of charitable work. He is one of Boston's outstanding citizens.

Dr. Robert J. Wiseman, better known to us as Bob, retired as vice-president and chief engineer from the Okonite Company on December 31. Bob returned to the Institute to receive his doctor's degree in 1915 and continued his work at the Institute as research assistant through 1917. From 1918 to 1921 he was a wire and cable engineer with the National Conduit and Cable Company. In 1921 he went to work for Okonite, becoming their chief engineer in 1928, and vice-president in 1950. Bob is a fellow and life member of the American Institute of Electrical Engineers. The many committees on which he has served would be too long to include. It is sufficient to say that he has occupied an outstanding position in his profession for many years. He will continue to serve Okonite as a cable consultant.

Henry C. Smith lives at 3900 South Crysler Street, Independence, Mo. He has been in very poor health the past several years. His wife was good enough to send me information regarding his very active life which I think would be of interest to you. After graduation he worked with Guy Lowell of Boston on the Boston Museum of Fine Arts and on many large private residences including the Clarence McKay home in the Berkshires, Commodore Plant's Fifth Avenue palace and the Harvard president's room in Harvard Yard. Locating in Kansas City he started his own general architectural practice and built many of the city's largest churches, hotels, and office buildings. In Independence, Mo., he constructed an auditorium which seats 6800 people, and a sanitarium and hospital. His largest work was the $6 million auditorium for the reorganized Church of Jesus Christ of Latter Day Saints, also in Independence. This building is largely of marble and contains a $115,000 pipe organ.

His elder son, Dr. Myron C. Smith of Santa Monica, Calif., was recently informed that his thesis on orbital mechanics was the first American thesis to be accepted by the International Astronautical Foundation in London. He has gone to London to read this paper before the society. The second son, Lawrence, is a successful architect in Independence and an instructor in mathematics. Henry would be delighted to hear from any of his old friends at the above address. — FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston 8, Mass.; JOHN NOYES, *Assistant Secretary*, 3326 Shore Crest Drive, Dallas 35, Texas.

'13

When this brief epistle is read by our readers spring will be in the air and hard old winter will have passed. Even those seekers of warmer skies, balmy breezes, verdant pastures, or equatorial waters, have failed, for the most part, to share their fortunes and pleasures with us. But we must not forget traveler and fisherman Dave Nason, who did forward a post card from St. Lawrence Hotel, Crane Beach St. Phillips, Barbadoes, B.W.I., with the usual lengthy message: "We are here as usual till April 1. Our best regards to all."

With many thanks to Charlie Thompson as well as E. B. Rowe, Secretary of Class of 1906, we were informed of the death of our very loyal classmate Zenas Crocker, who passed away March 2, 1960, at Cape Cod Hospital, Hyannis. Although born in North Dakota, he lived for some years at Cotuit. He was educated at Lowell Institute, Chauncey Hall School, and of course, at M.I.T. During World War I he served overseas as an Air Force lieutenant, training British Royal Air members in aeronautics. For many years, Zenas was connected with the brokerage business in Boston, until he retired, and was the first summer resident at Oyster Harbors, where in his last years he was a permanent settler. Many of us will never forget this staunch and loyal '13er, with his ready wit and hospitality. To Zenas' family, especially to his wonderful wife Merle, we extend the most heartfelt sympathy.

Again, John H. Hession appears in the news. He was named by the Massachusetts Society of Professional Engineers to serve as a member of the important Massachusetts Engineers' Week Committee, which was held in Boston from February 21 to February 27. Congratulations John. You are appreciated by your organization as well as 1913. . . . We were very pleased to receive a short letter from that stranger, Jack Horsch, but he brought extremely bad news. He stated that Earle Caldwell died June 25, 1959, in Wesson Memorial Hospital, Springfield, Mass., after a short illness. This was the first time that we learned of Earle's death and there will be more details following another letter from Jack.

We are saddened to make several other difficult announcements: On Saturday, November 29, 1959, Ronald M. Wilson, formerly of Quincy, Mass., died at his home in Bethesda, Md., after a long illness. After graduating from M.I.T., he joined the U.S. Geological Survey and spent many years mapping the Pacific islands. He was a World War I veteran, serving with the 29th Engineers and was a member of Bethesda Legion Post. 1913 mourns Ronald Wilson's death. . . . Three other prominent '13ers have departed to our Maker: John B. Shedden of 3747 North Lawndale Avenue, Chicago, died November 2, 1958; David F. Baker of Wellfleet, Mass., passed away September 28, 1959; Robert A. Lesher, departed from this world at St. Elizabeth's Hospital, Washington, D.C., February 11, 1960. We have received only these bare notices from the Alumni Office. If anyone can supply more particulars, we shall be pleased to record them for the benefit of all classmates.

Now is the time to begin thinking of our next reunion in 1961. You asked for it. It is your duty to write to your officers expressing where and how you want to participate in this interim reunion. See you next month? — GEORGE PHILIP CAPEN, *Secretary and Treasurer*, 60 Everett Street, Canton, Mass.

'14

Blizzards swept the country in early March, and at the time of this writing not a news item had been received by your secretary. Therefore, it must be assumed that either pens had been frozen by the cold or that much of the class was vacationing in balmier climates. Just a note regarding your retirement or activities will be appreciated.

Your secretary had a nice chat with Don Douglas earlier this week when he was in Cambridge for the M.I.T. Corporation meeting. Don has partially retired from his aircraft company and his son is now president. His son is a fine young man with whom your secretary had contact during the war in connection with guided missiles.

By the time you receive these notes Charlie Fiske will be back in Maine after spending a fine winter playing golf in Tucson. . . . Herman Affel frequently calls from the Boston airport where he must change planes to go to Canada after coming down from Maine. This is one case where the long way around is the shortest route. He is still doing consulting work for the Bell Telephone Company in Canada.

Three '14ers, together with your secretary, are regular attendants at the monthly meetings of the Alumni Council. All are retired but doing part-time work: Crocker is consulting for his former company, Arthur D. Little; Hamilton is working as executive officer for the Chemistry Department at M.I.T.; and Harold Wilkins is doing some consulting work for the Mico Instrument Company, also in Cambridge. Meanwhile, in spite of loafing around most of the time, your secretary works one day a week with the Liberty Mutual Insurance Company. — CHARLES P. FISKE, *President,* Cold Spring Farm, Bath, Maine; HAROLD B. RICHMOND, *Secretary,* 100 Memorial Drive, Cambridge 42, Mass.; HERMAN A. AFFEL, *Assistant Secretary, and Class Agent,* R. F. D. 2, Oakland, Maine.

'15

So you're going to our class reunion! Wonderful! I'll see you there with about 60 old friends and classmates. The reunion is stag and informal. When we return to Cambridge on Monday, June 13, there will be a class cocktail party at 4 o'clock at the M.I.T. Faculty Club. This is for everybody and guests — whether you go to the reunion or attend Alumni Day — you're all invited. We'd like to see a lot of people from 1915 show up. If you can't take in all the reunion at Snow Inn, Harwichport (Cape Cod), Mass., try to be there Saturday afternoon for the class picture, which will be sent free to everyone. It's getting late — will you be there?

Alice Anderson wrote: "Andy does appreciate the kindness of the class in thinking of him and writing him, and he has enjoyed your messages. The card you all signed at the New York class dinner has cheered him a lot." Unfortunately, Andy had to return to the East 91st Street Hospital the middle of February for further treatment. We all join in hoping and wishing Andy a quick and complete recovery. . . . Maurice Brandt wrote Larry Bailey a cheerful note from Salisbury, N.C., saying: "We anxiously are awaiting our 45th in June on Cape Cod. These are wonderful affairs that our class has."

The 1915 nomads are aggravating us with fan mail from their distant travels. From Guatemala City, Otto Hilbert wrote: "We are spending the month of February here and March in Mexico. This country is beautiful with lots of mountains, lakes, and volcanoes. The streets are filled with all kinds of color and picturesque Indians. Everyone is friendly and the hotel is good. The days are warm as the sun always shines, and the nights are cool. Before coming here we spent five days in Yucatan where the days were also very hot. We visited the Mayan ruins." . . . We hope Alan Dana and Otto meet up with each other down there, for Alan wrote from San Salvador that he was roughing it in 72 degree weather in one of those glamorous Caribbean hotels. Then a week later from Guatemala City: "The ladies are enjoying buying native woven skirts and blouses here. Prices are higher than in New York." . . .

Kaluhah (Ben, to us) and Lauretta Neal are relaxing in Honolulu. . . . And then as the *Bergensfjord* went down to New Zealand, Ed and Anne Sullivan wrote: "On this delightful cruise we have aboard A. G. Herreshoff'12 and B. C. Morse'20 who has a brother in Class of '17. Many of the Norwegian boys in the crew are taking this one trip only to see the world and then will return to school. One of them, a graduate architect from Norway, has a friend studying for a doctor's degree at M.I.T. I am looking forward to the reunion and Anne is waiting for the cocktail party." How about your meeting Ed and Anne and all our other classmates at the reunion and cocktail party? Plan to be with us. I'll see you at the reunion. — AZEL W. MACK, *Secretary,* 100 Memorial Drive, Cambridge 42, Mass.

'16

The annual class dinner in Boston was held on Wednesday, February 24, in spite of the flu and travel plans which combined to keep more than half of the "regulars" from attending. Those attending were Jack Woods,, Bridgie Webber, Ralph Fletcher, George Petit, Bob Crosby, Doug Robertson, Dick Hunneman, and Izzy Richmond. On the day of the dinner, Hy Ullian dropped out due to a bad cold and Nat Warshaw, Steve Whitney, and Dan Comiskey'17 also had to cancel out. Jack Hickey sent word that a bad cold kept him away. Howard Claussen had to withdraw his reservation when he got a hurry call to make a business trip to the south. Emory Kemp was on his annual visit to the Bahamas and Florida and was greatly disappointed to have to miss the dinner. Bill Drummey was in Arizona at the time and so was George Sutherland; Dave Patten was in Honolulu. Hovey Freeman was to be on the high seas in warmer climes but he threw in a "best to everyone!" Howard Hands' message also came from warmer climes, Florida, where he was "as usual, at this time of year. Remember me to all."

Bob Wilson reported from the West Coast that he had seen Maynard Guss in Santa Barbara. Howard Smith's card was mailed in Boca Raton, Fla., but bore the tantalizing wish-we-were-there address, Deerfield Yacht Basin, Deerfield Beach, Fla., with the message: "Alice and I are spending the winter here, living on our auxiliary sloop." As reported by Ralph, the toughest part of the activity surrounding the dinner was to receive a reservation from Harold Russell and then two days later to learn that he had passed away suddenly on February 10. He attended many of our reunions and all of the Boston dinners. His many friends will miss him. . . . As for the dinner, it was strictly an informal gathering with the main attracton, the opportunity to see and talk with good friends while enjoying an excellent dinner. Those who did attend are keeping busy and appear to be enjoying good health. They're looking forward to the 45th reunion in 1961, and many indicated they would be on hand for the 44th at Chatham Bars Inn on June 10, 11, and 12 in 1960. As usual the time passed all too quickly and the party adjourned to be reconvened on Friday, June 10, at Chatham. We're hoping that many more will join us at that time.

In March, Hovey wrote that this was the sixth Caribbean cruise he and his wife have taken during the last 30 years. He said: "We thoroughly enjoyed every minute of it although we visited no new ports. We made eight stops; saw my younger son, his wife and child, in Puerto Rico, and in Nassau saw my oldest son, my youngest daughter, her husband and their children. We had wonderful food and service, the ship was excellent and the weather was beautiful the entire time. The job now is to get back to work."

Dick Berger has been very busy on the preparation of his newest publicity release for his Cancer Prevention, Inc. It definitely will be out and released within the next months "barring unforeseen emergencies."

Emory Kemp reports returning to Wellfleet on February 28 from his month's trip to Florida and Nassau, just in time to hit the heaviest snowstorm on the Cape in the last 30 years. Items: 18 inches, plus or minus; a coast guard cutter aground in Sandwich; a 75 to 85 mph wind at Provincetown which blew a building off its foundation into the water. To top it all, Wellfleet's lovely old town hall caught fire during the blizzard on March 4, with a complete loss of that building and the entire library with its 9947 volumes, some, covering the history of Wellfleet, being irreplaceable.

He regrets he did not know about Jap Carr in West Palm Beach until he returned and read it in the March notes, for they stayed in West Palm Beach for five days. An ocean trip from Miami to Nassau on the good ship *S/S Bahama Star* had a flavor far removed from that of a Wellfleet winter — full moon, smooth sea, calypso lounge entertainment, orchestra, and cocktails — and excellent food. When they returned to Miami they set out for the west coast of Florida via Clewiston, on the south shore of Lake Okeechobee, to Sarasota. Then a drive out on Siesta Key, with its full view of the Gulf of Mexico, a beautiful residential spot with such appeal that they looked at cottages — with the thought of possibly renting next winter for a month or six weeks. (It's hard to imagine Emory anywhere but on the Cape.)

They visited for several days with friends in St. Petersburg and in Clearwater, where for two mornings the thermometer registered an unusual 34-36 degrees. Then up to Tallahassee, avoiding Rome, Ga. (where Carl Bangs'08 lives), because of icy roads, to Greenville. Emory says you *must* eat at Mammie's Shanty when you go through Atlanta! Although missing Jap Carr in Florida, they did stop off to see the Arvin Pages and stay overnight with them in Winston Salem. The following day they visited friends in nearby High Point. Arriving home in Wellfleet, they found they had driven a total of 4764 miles, which, with a normal daily distance of about 250 miles (Emory says he's learned to slow down since retiring) made a comfortable, pleasant, and non-tiring vacation trip.

Back in February, many saw in the *New York Times* a picture of Bob Wilson, and then 12 inches of story headed "Ex-Oil Executive Is Named to A.E.C.—Robert E. Wilson Nominated to Fill Vacancy Caused by Death of Vance." He was nominated by President Eisenhower to fill the four months remaining in Mr. Vance's term and to serve a five-year term of his own. The hearing on the appointment was set for March 15, too late to be reported in this set of notes. The news item noted that Bob had considerable experience in the activities of the Atomic Energy Commission for he had served on the commission's general advisory committee since shortly after the commission was created in 1947. The nomination was sent to Capitol Hill by the White House, and drew noncommittal reaction from Senator Clinton Anderson, chairman of the Joint Congressional Committee on Atomic Energy, which will pass on the nomination.

The *Times* article said further: "The long delay in filling the A.E.C. vacancy was attributed to the many political and personnel difficulties faced by the Administration in attempting to recruit a new commissioner. With other vacancies forthcoming, Senator Anderson and John A. McCone, chairman of the commission, are reliably reported to have reached an understanding that at least one of the new commissioners should be a Democrat. Mr. McCone, however, has found it difficult to find a Democrat acceptable to the White House. With Mr. Wilson the commission will have a political make-up of two Republicans, including Mr. McCone, one Democrat, John S. Graham, and two independents, John F. Floberg and Dr. John H. Williams, who has been ill recently. The Atomic Energy law sets no requirement for the political composition of the commission, but the Democratic majority of the Congressional committee is in a position to demand that the party be represented. Mr. Wilson served as chairman of the board and chief executive officer of the Standard Oil Company (Indiana) from 1945 until his retirement in 1958."

Howard Claussen retired from Bemis Bag Company on January 21, where he was vice-president, procurement and materials. He joined Bemis in 1916 and has been located at the company's Boston offices during most of his 43-year career. As reported in the *Boston Commercial Bulletin:* "Starting as the company's first New England salesman, he was transferred to the cotton department in 1920 and became director of that department in 1942. The position later was expanded to director of cotton operations. Elected a vice-president in 1946 and to the board of directors in 1949, Mr. Claussen continued as director of cotton operations until last June, when he was named to the newly created post of vice-president—procurement and materials. In that capacity, he has had overall supervision of the company's cotton goods department, raw cotton buying department, burlap department, and paper procurement department."

As many know, when requests are made for news, it is sometimes suggested that, if there's no news at hand, one could consider writing a bit of philosophy. To this Don Webster has replied: "Can't dig up any homespun philosophy for the class column at this writing. Have been gathering mussels, quahogs, and oysters and philosophizing between digs." Then on the subject of writing to classmates who are ill, Don says: "Should have been bright enough to have called for classmates' letters when I was laid up in a New York hospital for two months in 1957."

E. McKendree Hayden retired on January 1 from the Stanley Chemical Company, East Berlin, Conn., after 40 years of service. He will remain as a director, however. As special assistant to the president since January, 1957, he has been responsible for the development of new products, especially in the fields related to plastics. The *New Britain Herald* says: "Mr. Hayden joined the company as a chemical engineer in 1919, subsequently became works manager and technical director and was elected vice-president, a director and secretary November 23, 1936. He is a pioneer in the development of plastisols and organosols and has directed the technical program of the company for 30 years. A native of Colorado, he was graduated from Hotchkiss School and Yale University in 1914 and also received a B.S. degree from M.I.T. During World War I, he served as commanding officer of Kingsport Branch, Englewood Arsenal, Tenn. For the past eight years he was chairman of the Vinyl Dispersion Committee of the Society of the Plastics Industry."

We regret to report the sudden and unexpected death of Harold Russell on February 10. Last minute word came to Ralph's office from Bob Crosby. Flowers were sent from the class, and Bob O'Brien reports having had an opportunity to speak briefly to Mrs. Russell at the funeral. A letter to Ralph from Mrs. Russell says: "My daughter joins me in wanting you to know how much we appreciate the thoughtful kindness of Harold's classmates of 1916. His death was very sudden and a great shock to us and his many friends. He always looked forward to the class functions and was anticipating joining you on the 24th. He had such happy times and memories. Will you extend our thanks to the members of the class?"

Along in February, many of you received a most interesting letter from Ralph—illustrated—and showing five shots of the August, 1959, dinner in Boston when Ralph was presented with the M.I.T. chair, duly inscribed, as reported in the November '59 issue. Included in the top picture are: Steve Whitney, Mr. and Mrs. Bridgie Webber, Mr. and Mrs. Nat Warshaw, Mr. and Mrs. Izzy Richmond, Mr. and Mrs. Jim Evans, Sibyl and Ralph, Mr. and Mrs. Harold Dodge, Emory Kemp, Ed Weissbach, Bob Crosby, Al Lovenberg, Clint Carpenter, Jack Woods, Howard Claussen, Mr. and Mrs. Dan Comiskey, George Petit, and our honorary member Bob O'Brien. Ralph repeats it was a complete surprise and "one of the most pleasant experiences of my life. The pictures tell the story of the dinner much better than any words of mine." At the time of his letter, Ralph was continuing to be busy skiing and was expecting some day, "perhaps 20 years from now" to take things easy in the chair. *But*—and he should know—it's not a rocking chair!

Jim Evans, who sparks the monthly 1916 luncheons in New York (Thursday following the first Monday of each month at the M.I.T. Club of New York quarters in the Hotel Biltmore), is so busy he even misses some of the luncheons he plugs, because of a new-found intense activity in his home town of Paterson, N.J. Jim is acting as a substitute math and science teacher in the high school of Paterson and his facility is so high, his popularity so great (how could he miss?) that he's in constant demand by teachers and students. And we judge he's putting the right kind of spark in some young minds in this age of space and astronauts. . . . Walt Binger, who attended the March luncheon bearing an urgent note from Jim (who missed), must have some kind of secret on youthfulness, for he not only looks like far-less-than-average-age for the class but continues totally active in his business. Says he plans to continue "so long as some people are foolish enough to insist I handle jobs for them." With Dick Loengard'17 included, the March luncheon was small but cozy.

Early in March, a letter from Barney Gordon's secretary said that Barney would be writing soon. Barney is president and treasurer of MKM Knitting Mills, Inc., with mills in New Hampshire, Massachusetts, and South Carolina. . . . Willard Crandall had a long siege in the Hospital for Special Surgery in New York, and late in February sent a letter of appreciation for "many cheerful and inspiring communications from my classmates." He was then pleased to report rapid improvement and "for the present I think it might be well to pass the word along since the mechanical difficulty of acknowledging these favors individually is very considerable." We hope he'll be able to make the reunion in June although he expressed some doubt on this. A post card fom Dick Berger from Willard's bedside at the hospital noted that Willard was making progress.

Word from Bob Crosby was especially welcome at a time when it looked as though this month's column would be short. He remarked that the requests seemed persistent but "by the looks of the class notes, it certainly pays off." Said he hadn't much to say that would be

of interest to the class. He retired last July after having been with the United Shoe Machinery Corporation for 30 years and has spent most of his time riding his hobbies: "Not much traveling except for an occasional trip to New Brunswick, N.J., where my daughter is striving for a doctor's degree in psychology at Rutgers." Small world — we hope to see him down this-a-way.

Arthur Keller was given a signal honor on February 23 when the Arthur R. Keller Hall, the University of Hawaii's engineering and mathematics building, was dedicated on the campus of the university in Honolulu. A welcome by Laurence H. Snyder, President of the university, was followed by an address by Leslie A. Hicks, Regent of the university, and the response by Arthur Keller, Dean Emeritus, College of Applied Science, and former Vice-President of the university. Arthur joined the College of Agriculture and Mechanic Arts in 1909 as professor of engineering, and a few years later came to Tech to get his master's degree in civil engineering. According to the program for the dedication exercises, he: "contributed, perhaps more than any other person, to the physical, as well as the intellectual, development of the university. He drew up the plans for many of the early campus buildings. He and his students surveyed the area and laid out the drainage system that embraced a large section of Manoa Valley. His teaching was in the highest sense applied . . . he was appointed dean of the College of Applied Science when the institution became a university in 1920. Ten years later, in recognition of his executive ability, he was appointed the university's first vice-president. He conducted the university as its acting president during the months that intervened between the resignation of President Crawford in 1941 and the appointment of President Sinclair as his successor in 1942. On many occasions when the president was absent from the Islands he served as the institution's acting head.

"The retirement of Dean Keller in 1947 by no mean diminished his useful service to the university. One of the institution's most loyal emeriti, he has frequently been called into consultation and has participated in many official college events, even going back to teaching engineering classes at a time when an instructor was suddenly called into government service. Arthur R. Keller Hall stands as a fitting monument to a sincere, beloved, and extraordinarily active member of the university who over a span of more than 50 fruitful years has dedicated himself to its service." The four-story reinforced concrete structure contains 14 large classrooms and 10 smaller classrooms and laboratories. It also contains 35 offices and a computation center equipped with an IBM 650 computer. The Class of 1916 is proud to add its warm congratulations! Arthur says it was fitting to have the dedication exercises during Engineers' Week, and adds: "Honolulu has balmy weather while you who live in and around New York are shivering and snow-bound."

Earl Mellen keeps busy since he retired last year. One of his recent activities relates to Rutgers University and more particularly to the Newark Colleges of Rutgers. Of the funds available for new buildings to be built by Rutgers, some seven or eight million dollars have been allocated to the Newark program. He notes that since the operations of Rutgers in Newark have been spread among a number of different buildings, some of them have been, to say the least, far from satisfactory. (Rutgers is the state university in New Jersey; your secretary is a professor in the Statistics Center of the graduate school in New Brunswick, N.J.; half-time since retirement in 1958). The Newark deans and faculty have been looking forward with great anticipation to this building program and the new facilities to be made available. Dr. Mason Gross, President of Rutgers, selected a special committee to work with the deans and architects on this program and Earl is a member of that committee which has held meetings almost weekly in order to reach some fundamental decisions.

Earl has also been on the development committee of Newark College of Engineering to provide funds for postgraduate study, and has served as chairman of the annual membership drive of the Newark YM-YWCA. An outstanding honor came to Earl late in February. He was picked to receive the Silver Beaver Award by the Robert Treat Council of Boy Scouts. It came as — and was intended to be — a complete surprise. About a year ago, Earl headed a committee to raise funds for a lodge at the Boy Scout camp, to be built in the memory of Allen Cullmore, formerly President of Newark College of Engineering. The efforts were supplemented by a matched donation from the Hayden Foundation which made possible the complete construction of the lodge. Earl claims he'll surprise everyone one of these days and show up at one of the 1916 monthly luncheons at the M.I.T. Club of New York.

We hear of many travelers who, on returning from a trip, say regretfully they wish they had known that so-and-so was located at the place just visited, e.g., Lisbon, Athens, Honolulu, West Palm Beach, Santa Barbara, and even Ohio. This information can gladly be furnished by contacting your secretary in advance of your next trip, wherever it may head. Make requests to, and keep sending news bits, philosophy bits, or any other information of interest to the column to — HAROLD F. DODGE, *Secretary*, 96 Briarcliff Road. Mountain Lakes, N. J.

'17

Class agents Ray Brooks and Stan Dunning report that the class is making a substantially improved showing in Alumni Fund donations this year. Of our active class roll of 370, they report there are contributions from 134 as against 102 last year at the same time. The total amount for the class is $5,385 as against $4,118 last year. The average of $40 is the same for both years. We concur with Stan's comment that there is a real satisfaction in giving to the Alumni Fund, and as these notes — written in March — appear in the May Review, there is just time to get your contribution in during June for this year's fund. This is a good time to make plans to be at the Institute on Alumni Day. Even though this is not a five-year reunion year there is always a sizable group of 1917'ers present both with and without wives.

Leslie Christison, who lives in Northampton, Mass., writes: "After many years as research chemist in the textile field, I have made a complete change and am now teaching mathematics at the Mary A. Burnham School (college preparatory for girls) in Northampton. I am in good health and thoroughly enjoy the work, so I have no thought of retiring. My wife and I had a pleasant jaunt to Europe last summer."

The Attleboro, Mass., *Sun* featured a three-column picture of Charles E. Judge — in their December 23 issue of 1959 — smilingly holding a hand of playing cards. The article read as follows: "Charles E. Judge, Vice-president and a Director of American Sisalkraft Corporation, is retiring on January 1 after 37 years of service with the firm. He began his career with Sisalkraft in 1923 as superintendent of the original mill (American Re-enforced Paper Company) on County Street, and in 1946 was elected to his present position. An Attleboro resident for 37 years, Judge has served as president of the Chamber of Commerce, and is now one of its vice-presidents. In 1955 he was named chairman of the Attleboro United Fund drive, and he also serves as chairman of the Attleboro zoning board of appeal. He is a member of the Highland Country Club, Elks, and Lions Clubs, and is a past commander of the Attleboro American Legion."

Joyce R. Kelly of Richland, Wash., writes: "I retired from General Electric Company over three years ago, and have had less leisure since. My chief source of income is as local representative on engineering and sales matters for the Willamette Iron and Steel Company, in Portland. I also represent this company at the reactor test station near Idaho Falls. This assignment keeps me in touch with nuclear equipment progress, and has proven both interesting and rewarding from every viewpoint. Also I am nearing the end of an 18-month appointment as trustee in the bankruptcy of a large retail lumber and fuel company here. For three months I operated the company until the physical property could be sold. My avocation, however, for nearly two years has been local politics. As I look back, I can't think of a more unlikely outlet for my energies. It happened thus: Congress in 1955 passed legislation to enable the federal government to turn over the wartime cities of Oak Ridge and Richland to their citizens. About the middle of 1958, an election was held to select a group of 15 freeholders to draw up a city charter, and I was elected one of the 15. After election I was selected chairman of the charter committee. This city of 24,000 was officially incorporated as a first class city on December 10, 1958." Here is another retired 1917'er keeping constructively busy.

Another retiree is W. B. "Pete" Newell who writes: "After living in Florida, and

being with the Tampa Electric Company since 1925, I am retiring on April 30. When our first project is completed, which is to partially divest a large house of 20 years of accumulated furniture, we plan to spend six months in Florida each year, and the other six months — May to November — at Goose Rocks Beach, Maine. The next project is to build a larger house in Maine, and after that take a six months' trip to Europe in the fall of 1961."

Christopher C. Crowell wrote recently: "I didn't think I would make my 65th birthday, as the doctors gave me up several times. I am up and about the house during the winter, on crutches after many hip and other operations. In the summer, I stay at West Dennis on Cape Cod, not too far from the place where we are to have our next reunion, so I hope to take in as much of it as I can. Briefly, I have been practicing architecture in and around Boston for many years, but of course I have had to be in retirement now for several years. As a suggestion to any of the classmates who are retiring, I have found restoring antique automobiles to be very enjoyable work, and it is something that takes a lot of time — if time is hanging heavy on one's hands. However, due to my health, I have had to give this up and now am casting about for another hobby that is less strenuous.

"My wife and I really enjoyed going on tours — especially the Glidden tours — with other old car enthusiasts. As to family life, I have one son and three daughters, all married, and 13 grandchildren. I feel we must be getting old when we see buildings we designed years ago being torn down as the city grows."

The random notes section begins with Al Moody who says that he is "back in Denver and enjoying being back with old friends, and closer to most of our family. I am hoping to do a little work to keep me on my toes and from getting bored. Hope to see you-all in 1962 if not before." . . . Phil Cristal is a vice-president of the Merchants National Bank of Manchester, N.H. . . . Brick Dunham and wife will have sailed for an extended time in Europe at the end of April. They will be delivered a Volkswagen in Paris. When asked if he thought he would be bothered by the Paris traffic, Brick replied: "Not after driving through Watertown Square (Mass.) twice a day for all these years." . . . The Rudy Beavers are off on a four months' trip to southern Italy and Austria but will be back in time for Alumni Day. . . . Ed Aldrin proudly calls our attention to his son, Captain Edwin E., Jr., U.S. Air Force, who is doing graduate work in astronautics at M.I.T., after distinguishing himself in combat in Korea, and as fighter flight commander recently in Europe.

The "smile of the day" tells of an obnoxious guy, who had had a couple too many and was ready for an argument, got on the bus and found himself sitting next to a minister: "I'm not going to heaven because there is no heaven," he said, belligerently. There was no response. "I said I'm not going to heaven because there is no heaven," he said in a louder tone. "Well, then," the minister replied, "Go to hell, but be quiet about it." —

W. I. McNeill, *Secretary*, 107 Wood Pond Road, West Hartford 7, Conn.; Stanley C. Dunning, *Assistant Secretary*, 21 Washington Avenue, Cambridge 40, Mass.

'18

The world is divided into the righteous and the unrighteous, but in many cases only a few of us are truly capable of judging which is which. However, every man is defended by the sum of his good deeds. Take George Olaf Ekwall, for instance, who did his thesis in chemical engineering on "The Electrolytic Preparation of Permanganates," and then turned to the Episcopal Church where, as rector of Christ Church, Waltham, he has spent 30 years of his life in the ecclesiastical preparation of his people for a better life. A torch in the darkness of current civilization, and defended by the sum of these good deeds, George has been appointed Archdeacon of Lowell, and is already chairman of the diocesan board of examining chaplains. He also has been a provisional deputy to the general convention, a member of the diocesan council, department of Christian education, and the department of publicity. The duties of an archdeacon are to superintend personally all missionary work conducted by the archdeaconry; to visit each mission and aided parish annually; and to make regular reports concerning the same to the archdeaconry in which the mission or aided parish is situated; in the absence of the bishop and of the suffragan bishop, to preside at all meetings, and, as his representative, to perform such other duties as the bishop may assign to him.

John R. Poteat's good deeds for the General Electric Company have resulted in a pension for the rest of his life, allowing more time for relaxation and reflection than he has had in years. Amid the true springs of happiness and civilization, he says: "The February issue of The Review just came. After scanning the erudite portion of the book I naturally turned to the class notes. As I read those for '18 my thoughts went back to the 40th reunion at Coonamesset. We had a good time then, didn't we! One of the by-products of the gathering was the re-establishment of a connection that reached back before World War I. Marvin Pierce's present wife was the daughter of my Latin professor at Furman University, from which institution I graduated in 1913 before I went to Tech. My father was president of the college and Willa Pierce was born just three houses from where I lived. You can imagine what a lot of past was talked about and it was a heart-warming experience to pick up those threads dropped long ago. Since the reunion I have retired under the General Electric retirement plan. A couple of years before my retirement last September I had been planning my new home and had bought a couple of acres on a mountain side. If any one wants something to carry him through the possible shock resulting from being cut off from business responsibilities, let him build a house during that period.

"The result of our effort has been most satisfactory. We have a 220 degree view of mountains and can look for 60 miles over the peak country of South Carolina. It is a view that many people would go hundreds of miles to see and we have it from our own windows. The house is oriental in decor and contemporary in design. Of course it is all electric, even to the heat pumps that keep us warm. The town of Tryon is on the north-south fly way for those who travel and so far we have been blessed with numerous visitors. We hope this will keep up because life consists of the friends we have and we like to see them. The mountains of New England, while beautiful, have nothing on our North Carolina mountains."

In answer to this interesting document I wrote to Jack, challenging his comparison of North Carolina and New Hampshire. If we do not have his peach trees neither does he have our snow. However, if you would be defended by your good deeds, beware the rattle of boasting and the viper hiss of local pride. His reply cut us sweetly down to size: "As a child I spent many summers near New Hampton, N.H. So I know how beautiful it is. We don't have 30 feet of snow. But in the last two weeks we have had about 18 feet. It was followed by a hard freeze that has tied us up completely. For the first time in my life I have been marooned and while the main road has been plowed out my access road still awaits the plowman I have engaged to work on it. Fortunately, our power supply has been steady and ample, particularly since if the power went off we'd have a bit of difficulty keeping warm. So to answer your inquiry — the mountains are covered with a considerable depth of snow and the natives in this specific area say that nothing like this has happened for 35 years. You see this is what is known as the thermal belt where a temperature inversion phenomenon normally keeps the temperature warmer in winter and cooler in summer. Don't ask me how come! I guess we'll have to have a little belt tightening if the area is to retain its reputation for moderation."

Your secretary has recently received a generous letter from Sumner Whittier, head of the Veterans' Administration, thanking him for the contribution, intended to heal, animate, and fortify, which he made to the seminar program for their top executives. We hope this was a good deed, but assure everyone it will defend no one who lives in a smll town. Good deeds there are only local. . . . For some of us, good deeds on this earth are finished. Last month news came that Colonel Wheeler died January 14 at his home in Harbor Hills, Fla. He was born in Cambridge, served in the Philippines during World War I, and on MacArthur's staff in World War II. Between wars he was a professor of military science and tactics. He received the Legion of Merit with oak leaf cluster, the Bronze Star, Infantrymen's Badge, Philippines Liberation ribbon and the Distinguished Unit Badge. He retired from military service in 1949. . . . To the lengthening list must now be added George L. Hall who lived in Milton, N.H., until his death on December 31 last, and Ernest W. Hudder who had

been a resident of Wenham, Mass., prior to his death on December 6. — F. ALEXANDER MAGOUN, *Secretary*, Jaffrey Center, N.H.

'19

An interesting note from Carl W. Phelps in response to our inquiry for news: "My wife and I retired here in Tucson, Ariz., on March 10, 1959, after 11 years of teaching science in Jaffna College, North Ceylon (1921-32), and 26 years as principal of Kodaikanal School, Kodaikanal, south India. This school, maintained by the Protestant missionary enterprise, and supported by 14 mission bodies from North America, serves children chiefly of American families, within a radius of about 3000 miles or so, in south India. We felt our experience to be a great privilege. All the best to our M.I.T. gang." Address: 4349 East 16th Street.

E. D. May writes that he has been in Greensboro, N. C., since his company was purchased by the Newman Machine Company, Inc. He is chief engineer of the Whitney Company, director of engineering for the Newman Machine Company, and president of Baxter D. Whitney and son, Inc. . . . A card from Miami from Colonel J. W. Orcutt tells of his recent trip to Europe: "I made an 18-day tour of Russia covering 5000 miles inside Russia, visiting Moscow, Stalingrad, Rostov, Sochi, Georgia, Kiev and returning to London by way of Helsinki, Copenhagen, and Amsterdam. Then I went on to West Berlin for a week, making two afternoon tours of East Berlin. I spent two weeks in Frankfurt visiting many cities up and down the Rhine. Don't believe a war will occur in the foreseeable future."

Ed Pickop writes that he has nothing to report except that he is looking forward to the Tech dinner in Honolulu on March 2 with Dr. Killian as speaker. . . . Ralston B. Smyth writes that he retired as superintendent of Rolling Stock and Shops, Metal Transit Authority, on October 1, 1959. His address is now Stoney Brook Road, West Brewster, Mass. . . . Harry A. Kuljian has been named president of a new corporation, to be known as Fiber Process Associates. This company will engage in marketing the Kuljian continuous rayon spinning and processing machine, and designing and constructing rayon plants equipped with these machines. It will operate internationally.

Lloyd Sorenson took off two weeks in March for a trip to Florida to relax and play golf. The shipyard is busy finishing up the *Robert E. Lee,* a nuclear powered submarine, and getting ready to launch the nuclear powered aircraft carrier *Enterprise.* Lloyd's new address is 100 Riverside Drive, Newport News, Va. . . . Cards returned for insufficient address: Lawrence G. Ropes, 3396 S.W. 22nd Street, Miami, Fla.; and James W. Reis, Jr., Fair Oaks Avenue, South Pasadena, Calif.

We regret to report the death of Laurance M. Dalton on January 24, 1960. Laurance lived at 4195 Arden Way, San Diego, Calif. — EUGENE R. SMOLEY, *Secretary,* 30 School Lane, Scarsdale, N.Y.

'20

Flossie Fogler Buckland reports that members of the class have been coming through in most heartening fashion in response to our appeal for an extra special effort for the Alumni Fund in the way of a 40th reunion gift. She says that compared with class contributions to the fund in previous years we are way ahead both as to number of contributors and average size of contribution. Flossie says she is going to thank those contributors and those who have worked with her to obtain contributions when she sees them at the reunion, but meanwhile makes this public acknowledgment of gratitude. Those of you who have not yet gotten around to responding to this appeal need only to be told that there is still time. Flossie and her henchmen are counting on you to do your part for the class.

The mailing to the class on the reunion has already developed a wealth of information about classmates that is too copious to put in The Review but that will be reported on at the reunion — one more reason for you to make every effort to be there June 10 at Chatham Bars Inn. . . . As a result of the mailing, word was received of the death of Wendell P. Sammet. He died on April 8, 1958, and his widow writes from Sarasota, Fla. . . . Clifford M. Goodrich of Dalton, Mass., died January 22, 1958, and Brigadier General Rolland W. Case, who resided in Washington, D. C., died late in 1957.

We were unable to reach by mail the following classmates (if you have information as to their whereabouts, please let us know): Theodore G. Sullivan, Ridgway, Pa., Jules Lowenthal, Brooklyn, N.Y., and Arthur G. Merriman, Cleveland, Ohio.

Many of you may have seen the reference to Ed Burdell in a recent issue of The Review. It told the story of his leaving for Ankara, Turkey, in March, accompanied by Mrs. Burdell. Ed is taking on the job of organizing a great nationl university in Ankara to be along the lines of an American land grant university and to be carried on in English. Ed expects to be on the job there until his time of retirement, several years hence. He wants to be remembered to all of us who gather together next June. — HAROLD BUGBEE, *Secretary,* 7 Dartmouth Street, Winchester, Mass.

'21

Buenos dias. Lo siento mucho (according to our little booklet of phrases for *Norteamericanos)* because the news of our 1921 reunion in Mexico City is being delayed for publication in next month's issue of The Review. The Ides of March deadline for these notes makes it impossible to do justice to our topnotch party and our wonderful hosts of the M.I.T. Club of Mexico. So, with your indulgence, we will give this unusual event the full treatment it deserves in the June issue.

Stephen DeStaebler, younger son of Herbert C. DeStaebler, is in the nation's news for winning an art award to create a decorative sculpture for the lobby of the new Consumers Co-operative of Berkeley, Calif. His prize-winning work, called "Concerted Movement," is modern in concept and constructed of bronze and stainless steel rods and tubes. Stephen made the headlines a second time in the same month for his donation to the playground at Clinton Park, Oakland, Calif., of a heroic sculpture, nicknamed "Crazybone." The background for this idea was based on a study of play sculpture which Stephen made while a student at Princeton. He is now a graduate student at the University of California in Berkeley.

Having shown evidence of art talent at the tender age of eight and having been a successful painter in oils at age 14, Stephen has since excelled in many other media. He has created several stained glass windows, including one for St. Andrews Chapel of Grace Parish House in Kirkwood, Mo., and another which received enthusiastic press comment at a Princeton art exhibition. He is currently exploring the use of different metals as expressive material. He and his wife live in Oakland, Calif., and are planning a period of study in Italy. His older brother, Dr. Herbert C. DeStaebler, Jr., M.I.T.'50, is a nuclear physicist at Stanford University, and they have a sister, Mrs. Thomas T. Taylor, 3d, of Malibu, Calif. Dad, who is director of purchasing for Lambert Hudnut, Lititz, Pa., was one of the merry throng at our March reunion in Mexico City, arriving via a few days at Acapulco.

Barbara F. Lloyd, Simmons'58, younger daughter of Leon A. Lloyd, captured national honors for the distaff side of the 1921 second generation by winning the title of "Everybody's Favorite Nurse" in a similarly captioned article which appeared in *Look* magazine, March 15, 1960. The five-page story memorializes the 75-year-old Visiting Nurse Association of Boston, of which Barbara is a member, and features 13 pictures of her daily life, including two full-page illustrations, to prove *Look's* statement that "she is bright and beautiful and nursing is her whole life." Barbara sings with the M.I.T. Choral Society. She has a sister, Edith, Simmons'54, and a brother David. Al is power sales supervisor for the Narragansett Electric Company, Mystic Power Company, and Pequot Gas Company of Westerly, R.I., and a director of the latter two companies.

Arthur E. Raymond, vice-president in charge of engineering, Douglas Aircraft Company, has organized a new advanced research unit of top-flight specialists, according to an article in *Electronic Industries.* . . . Edwin S. Lockwood says he has retired after many years as division superintendent for electric distribution with Public Service Electric and Gas Company in Jersey City, N.J., and gives his home address as 530 78th Street, North Bergen, N.J. . . . Antonio H. Rodríguez's home address is Avenida 41 No. 2003, Marianao, Havana, Cuba. . . . Harold F. Stose has moved to a new home at 406 Worcester Street, Wellesley Hills 82, Mass. . . . Douglas Weatherston receives his mail at 715 Alamo National Building, San Antonio 5, Texas.

With the abundance of important 1921 news, the superscooping Review editors have set up a competitive column, diverting news from long-established channels, suppressing all but scant details and subjecting the notables to a quick brush-off, thus ". . . John J. Healy, Jr., Vice-president, American Institute of Chemical Engineers. . . . Dana C. Huntington, Director, Framingham National Bank. . . . Henri P. Junod, President, American Coal Sales Association. . . . Augustus B. Kinzel, recipient of the James Douglas Gold Medal Award of the American Institute of Mining, Metallurgical and Petroleum Engineers." In the same issue appears a rendering of a modern apartment house with the caption: "A citation went to this design for the Riverview Redevelopment Project in Cambridge in *Progressive Architecture's* design awards program. The architect is Edwin T. Steffian." *Fiat justitia.*

Just before the class group took off for the 1921 reunion in Mexico, Chairman Chick Dubé of the reunion committee advised that he and Maida were going to Guatemala City for a few days prior to the opening of the fiesta in Mexico City. . . . Ray and Helen St. Laurent spent about a month on a trip to the West Coast following the reunion, where Ray was busy on both Rogers and M.I.T. business matters. By now, you have Ray's class president's letter with the many items of timely interest, including the first announcement that the locale of our BIG 40th reunion in June, 1961, will be the New Ocean House, Swampscott, Mass. — to be near Cambridge for participation in M.I.T.'s centennial celebration. You also have Irv Jakobson's thought-provoking letter on our 40th reunion gift. We hope you'll help make it what we all know it should be.

Rich Clark and Dick Richards sent letters of regret that circumstances prevented their making the trip to Mexico City as they had planned. Dick kindly brings us up to date: "In 1928, I married Barbara Tyler of Bangor, Maine, and we have one son, Charles Wentworth Richards, 3d. A graduate of Carnegie Tech, he is married and has one son, the fourth of the same name. We are living in York Haven, Pa., where I manage the International Paper Company's mill." Dick says he has met a few '21ers at the Harrisburg meetings of the M.I.T. Club of Central Pennsylvania. Thanks, fellows.

Raymond C. Fisher wrote for the address of a brother Hexalpha and gave his new home address as 10215 Belgrove Court, Seattle 77, Wash. . . . Sumner Hayward, Joe Wenick, and your secretary attended the spring meeting of the M.I.T. Club of Northern New Jersey, which is celebrating its silver anniversary this year. Betty Hayward, Simmons'23, continues her literary career with an interesting article in the latest *Simmons Review* entitled "One Out of Every Eighty-Eight Names in 'Who's Who of American Women' is that of a Simmons Alumnae." . . . Phyllis Burckett, daughter of Ethel Burckett of Maplewood, N.J., and the late Maxwell K. Burckett is engaged to Walter P. Ulicny of Maplewood. . . . Congratulations from his many friends in the Class of 1921 to Ed Burdell'20, for 22 years as President of the Cooper Union, New York City, who has accepted the presidency of the Middle East Technical University in Turkey.

It is with heavy heart that we record the passing of two classmates and extend to their families the sincerest sympathy of the entire class.

Mrs. Michel P. Sinelnikoff writes from London, England: "It is with deep regret that I have to let you know that my husband passed away in 1959." Mike, as he was known to us, was born in Petrograd, Russia, on January 10, 1881, and was a 1913 graduate of the Imperial Institute of Archaeology, Petrograd, and also of the Technische Hochschule of Darmstadt, Germany. Entering the Institute in our junior year, he received the bachelor's degree with us in Course II. For many years, he had been a director of Orion Booksellers, Ltd., of London. A letter from him on the occasion of our reunion in 1941, advised that he had a son, Michael George, then aged 12. He added that Orion was closed for the duration and they were busy fighting Hitler, but even those hectic days did not lessen the ardor of his hobby of collecting rare geographical and scientific books of the Sixteenth and Seventeenth Centuries.

Walter Clifford Sadler died on October 14, 1959. A native of Elgin, Ill., he received a bachelor's degree in science from the University of Illinois in 1913 and a master's degree with us in Course I. For many years, he was a professor of civil engineering at the University of Michigan, Ann Arbor. During World War II, he served for five years with the U.S. Army, holding the rank of lieutenant colonel. He was awarded the Commendation Ribbon.

When you send in that 40th reunion gift, please complete and return your secretary's class questionnaire, if you haven't already done so. Alumni Day on campus in Cambridge is just around the corner on June 13, 1960. Why not join the large group of 1921 couples which always gathers for these enjoyable occasions? Make your plans now to be with the exceptionally large group of classmates and wives who will celebrate our BIG 40th reunion and M.I.T.'s 100th anniversary in June, 1961. Write to Ted or Cac at the addresses below if we can be of assistance in any way. — CAROLE A. CLARKE, *Secretary,* International Electric Corporation, Paramus, N.J.; EDWIN T. STEFFIAN, *Assistant Secretary,* Edwin T. Steffian, Architect, 11 Beacon Street, Boston 8, Mass.

'22

Buffalo's spring finally arrived on February 19, but it looked just like winter for a few weeks thereafter. Not so much snow, however, as in Boston, and no transportation difficulties. The Alumni gift reports indicate encouraging results to date, especially for our famous class which is near the top in number of contributors and total dollars received. We should all keep shooting for that big 40th reunion gift in 1962. We're coming along very well but we're not finished yet.

Clate Grover, President of Whitehead Metals, Inc., visited with Larry Davis at the University Club of New York on March 1 and writes as follows: "Larry is vice-president of international sales of Mobil International Oil Company. He is having built, in Japan, a 46,200-ton tanker; a ship larger than the *Mauretania.* The ship will be registered in Panama and ply for Socony between the Persian Gulf and Japan.

"Originally, the ship was to be named *Marion* after Larry's wife. You will recall that she passed away suddenly a few days before Christmas last year. Nevertheless, they have decided to name the ship *Marion* after her as originally proposed. Furthermore, they have invited Larry's married daughter, Patricia Davis Durell, to christen the ship in her mother's stead. Pat lives in Frederick, Md., has a 16-month-old son, and has accepted the invitation. She and Larry will leave presently for Japan via air with a stopover of a week or 10 days in Hawaii. The launching will be on March 31 at the Sasebo Yard which used to be the Old Imperial Navy Yard. Pat and Larry will continue their journey around the world by plane, with stop-overs in the Far East and the near East. They are due back in New York on April 29."

New addresses received include George Heathman, Dayton 19, Ohio; Mansell Richards, Glen Farms, Newark, Del.; Platt Benedict, O. O'Keip Copper Company, Cape Province, South Africa; E. Allan Reinhardt, Jacksonville 11, Fla.; Thomas Quirk, Braintree 84, Mass. . . . Signing off in Buffalo with one foot on the Florida plane. — WHITWORTH FERGUSON, *Secretary,* 333 Ellicott Street, Buffalo, N.Y.; C. GEORGE DANDROW, *Assistant Secretary,* Johns-Manville Corporation, 22 East 40th Street, New York 16, N.Y.

'23

William Webster, President of the New England Electric System and the Yankee Atomic Electric Company, was the guest speaker at the January 18 meeting of the Wellesley Club. His subject was the "Yankee Atomic Energy Project at Rowe, Mass., and the Prospects for the Use of Atomic Energy in New England." A graduate of the United States Naval Academy and M.I.T., Mr. Webster served in the Navy as a naval constructor. He joined the New England Electric System in 1928 as assistant to the general manager, becoming president last year. During the war and for some years afterwards, he was loaned to the office of scientific research and development, serving as deputy to the Secretary of Defense for Atomic Energy, chairman of the military liaison committee to the Atomic Energy Commission, and finally as chairman of the research and development board. He is a director or officer of a number of other organizations, including the M.I.T. Corporation, Rand Corporation in Santa Monica, Calif., Woodrow Wilson School, Princeton University, Arthur D. Little, Inc., and the Atomic Industrial Forum.

By the time you read these notes your secretary and Mrs. Hayden will have been

to Costa Rica and Guatemala and back and we hope to have some fine pictures of those colorful countries.

It is with regret that we report the following deaths of members of our class: Gerald Putnam, 57, of 258 Gray Street, Arlington, Mass., died on January 8. He was assistant professor of graphics at M.I.T., and lecturer of mathematics at Tufts University and Northeastern University. He was born in Clinton, Mass., taught at M.I.T. until 1937, was a consulting engineer in Harrisburg, Pa., until 1940 when he returned to M.I.T. . . . Ramon Fabella Abarquez died on March 17, 1959, at the age of 67 in Manila, Philippines. He was dean of the School of Mining Engineering, Mapau Institute of Technology; secretary of the division of physical and mathematical sciences; chairman of the section on geology, seismology and volcanology; chairman of the section on mining and mineral technology of the National Research Council of the Philippines; member of the petroleum technical board, Bureau of Mines; master of Bagumbayan Lodge No. 4 F. & A. M., and 32nd degree; KCCH of Luzon Bodies, A. and A. S. R. of the Philippines.

Shortly after graduation, young Abarquez was appointed graduate assistant in the School of Pharmacy, University of the Philippines. After a brief stint in the state university, he transferred to the erstwhile Bureau of Science where he held positions of varying importance — mining engineer, metallurgist and geologist — for several years. When the Bureau of Mines was created, he occupied some responsible positions, such as geologist and mining engineer and finally chief of the division of mines, which position he held until the outbreak of World War II. In 1934, he was designated the first district mining engineer of the Baguio division of the Bureau of Mines, to organize and be in charge of the office, which he held until his return to Manila in 1936. In 1945, he became chief of the division of geological survey and on eight occasions, during the period from 1947 to 1952, he served as officer in charge and as acting director of the Bureau of Mines. He retired in 1956 after 40 years of government service.

We wish to report the following address changes: George B. Will, 170 Wildwood Avenue, Montclair, N.J.; Robert T. Colburn, 1420 "O" Street, Sacramento, Calif. — HERBERT L. HAYDEN, *Secretary*, E. I. duPont de Nemours and Company, Leominster, Mass.; ALBERT S. REDWAY, *Assistant Secretary*, 47 Deepwood Drive, Hamden 17, Conn.

'24

"Some of the pomp and ceremony of the old world was used last night to salute a bellwether of the new world." How's that for a lead line in a news story? It came from the fluent typewriter of a Dayton reporter. The bellwether was Dave Meeker, and it seemed that the Newcomen Society "had turned to British tradition" to honor Dave and his Hobart Manufacturing Company. Not at all clear where the British tradition came in, but the story did say that toasts were drunk to President Eisenhower and Queen Elizabeth. Maybe that was it. The ceremony making him a Kentucky colonel didn't sound very British, nor did the book containing copies of more than 65 patents Dave holds. And of course President Meeker was called upon to give a speech. It was entitled "Better Eating . . . From Start to Finish," all about how Hobart food preparation machines lighten the day. A high honor for a man who really deserves it. And by the way, those patents sound like some kind of a new record for a Course XV man!

There was a feature story in the *New York Times* recently about another of our classmates from Ohio who has also received high honors. Howard E. Whitaker, chairman and chief executive officer of the Mead Corporation, paper makers and "giant of the packaging field," is the new president of the American Paper and Pulp Association. Both Dave and Whit have been with their respective companies since graduation. The story said that Whit is a director of the Cincinnati branch of the Federal Reserve Bank of Cleveland, is a member of the national board of the Boy Scouts, and is a hunter and golfer. It ended with a nice comment about his company: "We don't want to be the biggest in the business, but we do want to be the best."

And here's news of a different sort about an entirely unexpected accomplishment of another classmate. You will remember that, for many years, Jimmy Wong followed his Course XIII training as superintendent of Alfred Holt and Company (Blue Funnel Line) in Hong Kong. He became actively interested in church affairs many years ago and finally gave up shipping to enter the ministry as the Reverend James C. L. Wong of the Holy Catholic Church of China (Episcopalian). Last year he was appointed assistant bishop in the Diocese of Borneo by the Archbishop of Canterbury.

This February he was consecrated in Sarawak and now has taken up his new work in north Borneo. The list of those who participated in the ceremonies reads like a high-church directory of the Far East: the Bishop of Hong Kong was assisted by a group of Right Reverends including Nigel Borneo, Henry Singapore, Victor Rangoon, and others from as far away as Korea. Jimmy wonders if he is the first son of M.I.T. to become a bishop. He probably is. That's something for the Rev. Gertrude Harris to shoot for.

This news came indirectly from Hank Simonds who had dinner with Sam Helfman in Baton Rouge in February, then hit the West Coast and took off from there for Japan. . . . A note from Don Moore says that Joe Tryon is retiring from Gulf Oil and expects to move to Florida sometime this spring. . . . In Milwaukee recently I learned that George Anderson, for some years a vice-president of Bucyrus-Erie, has recently been elected to its board of directors. . . . And in Louisville, I attended a very pleasant meeting presided over by Walter Weeks. Walt is regional chairman there for the Alumni Fund and is doing a wonderful job. . . . Talked with Ingram Lee in Dallas. Ike, you will remember, retired last year, and he and Mary were to leave shortly on a leisurely off-the-beaten-path cruise of the Caribbean. This is probably to celebrate the completion of his master's thesis in early French literature. In spite of some lurid spots, the southern Methodists accepted it.

These notes may not be lengthy this month, but they're certainly a lot more cheerful than some recent ones. And when before have you read in one fell swoop about such a varied group of appointments to high office: Kentucky colonel, society president, church bishop, and master of French literature? It will be difficult to keep on such a high plane, but we'll try again next month. Oh yes, don't forget Alumni Day on June 13. Hope to see you there. — HENRY B. KANE, *Secretary*, Room 1-272, M.I.T., Cambridge 39, Mass.

'25

This is the last opportunity to remind you through this channel of the 35th reunion which is only a few weeks away. If you have not already responded to the letters regarding it, give the matter some serious attention and plan to join us on Cape Cod beginning June 10. You will miss a good time if you aren't there!

In the news during the past month, we find that Richard L. Gatewood has been appointed secretary of the South-Eastern Underwriters Association of Atlanta, Ga. He joined the engineering staff of the Association immediately following graduation and has been serving as assistant chief engineer since 1940. . . . Rear Admiral Theodore Lonnquest, who received his M.S. from the Institute in 1925, was listed among a large number of ex-officers of the military working with defense contractors. Admiral Lonnquest is presently with the General Electric Company in Lynn.

Ed Lynch received a very fine write-up in the Wakefield, Mass., *Item*. Ed has served Wakefield for a number of years as a trustee of the Lucius Beebe Memorial Library in that town, and he is running for re-election to another three-year term this year. It is expected that his campaign was successful, although we have no proof of it as yet. Ed has been living in Wakefield since 1940 and according to this article has been extremely active in civic and church affairs. . . . A note from Al Sherman, who is located in Cuba, as many of you will remember, indicates that the going there is pretty rough, as I think most of us realize. He had hoped to be present with us for our reunion, but things are such now that he cannot see his way clear to make it.

A long letter from Tony Lauria indicates that he is heading back to Europe this summer for his vacation. In the past he has hit southern and central Europe, and this coming summer, he expects to go further north, starting from Paris on to Vienna, the Bavarian country, Helsinki, Stockholm, Oslo, and Copenhagen. Tony will have his Leica with him, and many more colored slides will be added to his very fine collection.

In my rush to meet the deadline with these notes a couple of months ago, I did not do full justice to Maxey Jarman. As many of you have already noted, Maxey is chairman of the Board of Genesco, formerly the General Shoe Company; and Genesco, in addition to being a very large shoe manufacturing concern with a chain store complex, controls such well-known stores as Tiffany, Bonwit-Teller, Henri Bendel, and so forth.

Our class suffered another severe loss on January 13, 1960, when Ray Wheelock, employed by the Hercules Powder Company, passed away. . . . Another death, that of Benjamin J. Holt, in June, 1954, has been brought to our attention within the past couple of weeks. — F. LEROY FOSTER, *Secretary*, Room 5-105, M.I.T.

'26

This wintry Sunday morning seemed to offer little incentive to withdraw from beneath the electric blanket here at Pigeon Cove. The northwest wind was howling, the ocean roaring, and the sky spitting snow. However, logs were prepared in the fireplace and I touched a match to them before getting under the shower. When it's gloomy outside a brilliant hearth does much to cheer up the day. By breakfast time a lone gull that frequents our sea wall had arrived for his tidbit — this morning it was a doughnut. This gull comes to visit us as soon as we arrive but is he stupid! We always feed him but as soon as we toss him food he starts to squawk and in nothing flat there are 25 gulls after the food and he has to fend them all off to get one bite. He does it every time and I have given up trying to understand gull psychology. However, I'm sure many humans could gain a lesson from observing the fate of our pet gull.

Thanks to Edward B. Rowe, secretary of the Class of '06 who sent me the clipping, we have some sad news — Pop Constantine has just passed away. One of our most loyal Alumni and classmates, Pop had been in declining health for the past 10 years. The clipping tells the finale: "Funeral services will be held Monday, March 7 for Lieutenant Commander Basil G. Constantine, USN (RET.), 55, of 51 Converse Street, Longmeadow. He died Thursday at the Chelsea Naval Hospital. A native of Sparta, Greece, he served with the U. S. Navy from 1925 until his retirement in 1946. He was a graduate of Massachusetts Institute of Technology, Class of 1926, and a past president of the M.I.T. Club of Pioneer Valley. He was also a member of the Russell Lodge of Masons, Arlington. He leaves his wife, Mrs. Ida (Sorros) Constantine; three sons, George of Schenectady, N. Y., Basil, Jr., of Boxford, and Andrew of Longmeadow; and a brother, James of Boston." For the class, your secretary extends our sympathy to Pop's widow and his family.

Last month I mentioned a letter received from George Breck of 53 Newell Drive, Bloomfield, N. J. Let's see what he has to say: "Three years ago five men from a local bird club and I came to Cape Ann about this time of winter to see the rare birds. This time it was my wife and I. We arrived Tuesday the 25th of January. Having studied the motel situation beforehand, we planned to stay on Route 1 near Danvers, which was not too near the shore area we wanted to see from Cape Ann to Salisbury. But that was the best we could do. We covered the coast with quite good results. Our best birds were a harlequin duck, two black guillemots and a black-headed gull. We missed the barrow's goldeneye in Gloucester harbor, the eider ducks at Rockport and the snowy owl at Salisbury as well as many others but nevertheless were all set to return the next day due to heavy snows. I was really sorry not to call you at Pigeon Cove and try to get together. Those things you write about that place sound awfully cozy to an outdoor lover.

"What's new otherwise? Well, don't take this letterhead (Consulting Engineer) too seriously. I'd like to make this effort work but it looks doubtful. I left Bendix two years ago, was with Kearfott a short time and now am on my own. If I don't get more business you can put me down as semi-retired or even all-out retired. Have been doing some writing on subjects as yet undisclosed — something I've always dreamed about — to fill in spare time. Hope to get in print one of these days. Did you read in the December *Reader's Digest* about a new ear operation called "stapes mobilization"? One in three with poor hearing are candidates and I happened to have the right type of hearing loss, otosclerosis, in both ears. My hearing was down 50 to 70 db. in both ears. Have only had my right ear done so far but with interesting results. The loss is reduced and I even hear perfectly on the telephone now. I hope to have the other ear done in a couple of months. (It's better in warmer weather as catching a cold for a few weeks after the operation is bad.)

"I continue to be active in the birding and conservation fields. My specialty in birding has been hawk watching. The last three years' main effort has been in buying a choice local piece of land to save for the future. It has been and will be used mostly for watching hawk migrations in September and October as they go south for the winter. It's here in Montclair, and is probably second only to Hawk Mountain in Pennsylvania in popularity. By the way, our classmate Dick Pough was key man in buying *that* spot to convert it from hawk slaughtering into hawk watching 25 years ago. Maybe this gives our class a sort of monopoly on this sort of thing."

We also have a newsy letter from Walter Lobo whose letterhead reads "Consulting Chemical Engineer, 124 East 40th Street, New York 16, N.Y." He writes: "Having just read your class notes tonight and learning that your file is very thin (other classmates take notice — G.W.S.), I thought I would just drop you a line to say 'hello.' One item of interest is that at long last we had a reunion of some of our Course X practice school group. We had the pleasure a couple of weeks ago of having with us for dinner, Ed Gohr and his wife Polly, and Paul Mahoney and his wife Marny. We spent the evening talking over old and new times. . . . Charlie McCulloch, I understand, is in Europe for a fairly considerable period, so much so, that he asked his wife Helen to join him since he had no idea when he would get back. I know that news did not displease her as she has been wanting to travel with him overseas for a very long time.

"My son Paul '50, X, now in charge of petrochemical development at Continental Oil Company's Ponca City refinery, passed through here recently on his way to Germany on a quick trip for his company. He is doing very well in Oklahoma, and is still an eligible bachelor. I do not recall whether I ever told you I have set up my own chemical engineering consulting offices here in New York. I am now in my third year. At least the second was better than the first, and the third looks as though it might continue the improvement. Although it yet has not been sufficiently financially rewarding, it has promise and certainly gives a satisfaction that is hard to get from working for someone else. I must congratulate you on not having missed an issue with your class notes. I wonder how many other secretaries can say the same thing." (Don't congratulate me, Walter, it's letters from classmates like you that keep me going).

Having done well with contributions from the class this month I believe I'll quit while I'm ahead — but don't let that discourage you from sending along a note. Before winding up I want to mention an interesting incident that happened last November. I made a quick trip to Washington to attend part of an American Chemical Society meeting. Having an hour available before plane time, I dashed into the National Art Gallery and attached myself to a group that was being conducted through the gallery. While listening intently in the second gallery I felt someone poking me in the back. After the third poke, I turned around and fancy seeing Pete Doelger and his wife. Pete was in Washington on some problems resulting from the recent sale of his business in New York and was attracted as was I to the interesting and relaxing Mellon Gallery. . . . If Mooney Owen reads this — I phoned twice, once at his home and once at his office, but could not catch up with him on this short visit. Now that the notes are complete, the sun is coming out and it's still only 9:15 A.M., so there's a full day ahead. We hope to see many of you at Alumni Day next month! Cheerio, 'til then. — GEORGE WARREN SMITH, *Secretary*, c/o E. I. duPont de Nemours and Company, Inc., 140 Federal Street, Boston, Mass.

'27

An interesting item appeared in the January 12 issue of the Beverly (Mass.) *Times* announcing the appointment of James T. Chirurg as one of a five-man team of U.S. businessmen who would represent the United States on an important trade mission to the United Arab Republic early this year. They were to leave by jet plane on January 16, not to return until March 4. The appointment to this mission was made by the Assistant Secretary of the U.S. Department of Com-

merce and papers of confirmation, signed by Bradey Fiske, Acting Secretary of International Affairs, were received by Jim, who represented the U.S. in marketing and advertising.

The team had intensive briefing by the Bureau of Foreign Affairs, the Departments of State, Commerce, Labor and Agriculture, as well as by members of the Import-Export Bank. Business conditions in the country of assignment, U.S. foreign and economic policies, and the potentials of international trade development were among the fields discussed and explored. They were to carry with them proposals which any American firm was invited to submit, and which would be publicized abroad before the arrival of the mission. These plans were used by the mission members to initiate negotiations between American and foreign firms interested in exporting, importing, investing, forming agency arrangements and/or engaging in joint ventures.

Jim has become well known in Danvers since moving there several years ago from Boston, and is chairman of the Danvers Industrial Development Commission, having been named to that post in 1956. He is also chairman of the board of the James Thomas Chirurg Company, a leading public relations and advertising firm of Boston and New York.

A news clipping from the *New York World-Telegram* announced the election of C. Wesley Meytrott as president of Adelphi Academy in Brooklyn, N.Y. Wes has become an outstanding citizen of Brooklyn, and is active in many civic affairs. He is a past president of Brooklyn Rotary Club, and the office mentioned in the recent clipping is just one of many which he has held over the years. He is also a vice-president of Consolidated Edison and chairman of the executive committee of Methodist Hospital.

It has come to our attention that Harland P. Sisk has been named general manager of the General Electric Company's distribution transformer department in Pittsfield, Mass. Harland went to Pittsfield as a test student and transferred to the power transformer production section in 1933 and, in 1934, to the general superintendent's office on manufacturing methods. In 1936 he became a member of the staff of the vice-president in charge of manufacturing in Schenectady. He returned to Pittsfield in 1943 for special assignment in production and, in September 1944, was appointed assistant superintendent of the distribution transformer manufacturing division. In November 1945, he was named superintendent of the Holyoke plant, and manager in September 1946. In August 1951, he returned to Pittsfield as superintendent of distribution transformer operations, and was appointed manager of manufacturing in 1952, which was the position held until this new assignment.

Leslie J. Weed, a prominent Wellesley, Mass., resident and Massachusetts engineering leader, played a leading role in this year's National Engineers' Week celebration, which occurred during February. Leslie, President of the Engineering Societies of New England, was named by the Massachusetts Society of Professional Engineers as a member of the important Massachusetts Engineers' Week committee. The committee, which had the responsibility of co-ordinating and planning all programs and events during Engineers' Week, was composed of engineers from all over the Metropolitan Boston area, representing numerous technical societies and engineering-industrial organizations. His present position is as head of the electrical engineering section of the Boston Edison Company, with which company he has been associated since graduation. For many years a prominent leader in engineering circles, he is past section chairman of the American Institute of Electrical Engineers and currently is secretary of district 12 for the A.I.E.E. — J. S. HARRIS, *Secretary*, Shell Oil Company, 50 West 50th Street, New York 20, N.Y.

'28

On February 6, a beautiful wedding ceremony took place at the M.I.T. Chapel and Phyllis Jean Butts became the bride of Michael Andrew Woolf. Phyllis, who is the daughter of Mr. and Mrs. Herbert C. Butts of New Berlin, N.Y., attended M.I.T. and Boston University. Michael, the oldest son of our good friends, Ruth and Abe Woolf, attended Harvard and the University of California at Berkeley. The young couple are living in Berkeley where Michael is a graduate student in physics. Our very best wishes to you, Phyllis and Michael, for many happy years ahead, and our congratulations to all of the parents!

We find our classmate Max Alimansky in the news. The *Transcript-Telegram* (Holyoke, Mass.) for February 22 carried a good photograph of Max and the following information: "Max I. Alimansky, manager of the General Electric Company in Holyoke, has been selected by the company to attend the nine-week advanced management course at Crotonville, N.Y. The course begins on March 15. He started with G.E. in his student days and began his first full-time employment at the Pittsfield plant in 1929. He has moved from sales, to capacitors, to transformers, and then, in 1952, to a managerial post. He came to Holyoke from Lynchburg, Va. Alimansky, who has built a home at 195 Mountain View Drive, in Wyckoff Park, is a director of the Chamber of Commerce, a member of the Rotary Club, and is active in the 1960 Community Chest campaign."

The class can be well pleased that the showing this year in its special gifts contributions to the Alumni Fund is the best we have ever had. We hope that this improvement is a promise of continuing stronger support of the Institute by the class. Credit for this year's success goes to all of you who participated, to the willing solicitors, to our class agent Charlie Worthen, and to our hard-working special gifts chairman, Jim Donovan. In addition to our local area chairmen and solicitors, the following gave generously of their time and effort in this year's campaign: Newton Foster, William McClintic, George S. Hubbard, Kenneth J. MacKenzie, Edward R. Stevens, Grant Flynn, Homer A. Burnell, James A. St. Louis, Gilbert C. Toone, Gordon F. Rogers, Gilbert Smiley, D. Y. Bradshaw, Christopher M. Case, Edward Hartshorne, Peter H. Kirwin, Robert R. Larson, J. Gordon Collins, Stanley M. Humphrey, Arnold A. Archibald, Donald S. Fraser, Robert T. Wise, Henry C. Buntschuh, and William Hurst. To all of you gentlemen, our sincere thanks! — GEORGE I. CHATFIELD, *Secretary*, 11 Winfield Avenue, Harrison, N.Y.; WALTER J. SMITH, *Assistant Secretary*, 15 Acorn Park, Cambridge, Mass.

'29

You all saw the notification in the February Review of John Wilson's appointment as Secretary of the Corporation upon the retirement of Walter Humphreys'97. I am sure you all join me in congratulating John and extending our best wishes in his new appointment. . . . Ed Farmer had a bout with his "ticker" early this year, but I am happy to report that he is now at home and recovering fast. I guess one never can tell. Who would expect a calm guy like Ed to turn up with a coronary.

A sad note, which Gordon Williams forwarded to me, taken from the *Civil Engineering* noted that Ted Appel died on December 29. Ted's home was in Champaign, Ill., where for many years he had been chief engineer with C. S. Johnson Company of that city. Previously, Ted was in the construction plant division of the Tennessee Valley Authority. He graduated from Franklin and Marshall College before attending Tech where he got his degree in civil engineering with us in 1929. — FISHER HILLS, *Assistant Secretary*, 62 Whittemore Avenue, Cambridge 40, Mass.

'31

Ed Hubbard, of the team of Davis and Hubbard (our special gifts chairmen), writes: "Up to January 31, 163 or 25 per cent of us have given, as compared with 138 or 21 per cent last year at this time. Among classes 1920-1929, nine did better, one worse, and the top performer had 30 per cent contributing. Among classes 1930-39, four did better, five worse, and the top performance was 28 per cent. Our average contribution was $37. We had one gift of $1000, three between $200 and $400, 15 between $100 and $199, 15 between $50 and $99, 46 between $25 and $49, and 83 less than $25. If we had had 30 more givers we would have equaled the best that any class reported between 1920 and 1939." Ed and Ralph, as well as your class officers, want to express their appreciation for all you have done. (That reminds me that I haven't sent in my contribution yet. Won't some of you other procrastinators join me and see if we can't really push that percentage up?)

An article in the *Framingham News* tells that Julian P. Hastings has been appointed to the position of assistant clerk at the First District Court. Julian has been

in business in Framingham, has been a member of the board of assessors for the past three years, and has spent most of his life in Framingham. According to the article, his great, great, great grandfather settled there in 1806 and the Hastings family has resided there ever since. . . . A publicity release from the Tubbs Cordage Company of California tells that Irwin M. Lord, former production manager, has been appointed vice-president of Tubbs.

It is my sad duty to report the death of Charles C. Gelinas. According to an article in the February 16 *New York Times,* Charles was an architectural engineer for the Austin Company. He passed away on February 15 at the Elizabeth (New Jersey) General Hospital after a short illness. He left his wife Ruth, a daughter Marian, and three sisters. We extend our deepest sympathy to them.

New addresses reported during the month are Gordon L. Colquhoun, P.O. Box 148, Salem, N.H., Irving W. Finberg, M.I.T., Department of Military Science, Cambridge 39, Mass., Emile P. Grenier, 2436 Fuller Road, Ann Arbor, Mich., Patrick J. D. Harney, Box 427, Cambridge 39, Mass., Harry D. Kamy, Trans Supply Control Agency, A.P.O. 58, New York, N.Y., David W. Motter, Esso Company, P.O. Box 209, Madison, N.J., and Vladimir A. Semion, 1470 Sierra Vista, La Habre, Calif.

Hope to see you in Cambridge on Alumni Day this year so we'll have a good group to start plans for our 30th reunion. — EDWIN S. WORDEN, *Secretary,* 6 Murvon Court, Westport, Conn.; GORDON A. SPEEDIE, *Assistant Secretary,* 90 Falmouth Road, Arlington 74, Mass.

'32

Big news! One of our classmates, Zeke Boling, I, has just been elected vice-president of the Engineers Joint Council, the federation of 21 national engineering societies representing 300,000 engineers. Zeke is an authority on heat transfer and the holder of many patents in this field. He is past president of the American Society of Heating, Refrigerating and Air Conditioning Engineers, and a former trustee of the New York State Institute of Applied Arts and Science. He is also past president of the West Hartford Chamber of Commerce and president of Dunham-Bush, Inc., of West Hartford.

The *Boston Sunday Globe* of December 6, 1959, carried a large picture of Major General John H. Hinrichs, II, resplendent in uniform with three stars on each shoulder, and a caption with a long description of his activities since graduating from M.I.T. As an old Army officer myself, who in four years of wartime service just missed getting three stars by a mere five ranks (those gold leaves were prettier than glittery stars), I was interested in the long and arduous career of training, education, and increasing positions of responsibility that eventually led a man to the top. The schools he graduated from included West Point, M.I.T., the Army Industrial College, and the National War College, in addition to normal training schools and programs. His commands included the Twin Cities Ordnance Plant in Minnesota, Deputy Ordnance Officer for U.S. Army Forces in the Pacific area, service with the joint logistics plan committee of the Joint Staff and then as a faculty member of the National War College. He has been in the office of the chief of ordnance for the past eight years, serving successfully as deputy chief of the field service division, assistant chief of ordnance, deputy chief and then chief of ordnance for the past two years.

Early in March, I was down in Attleboro looking over some of the activities of M and C nuclear division of Texas Instruments. It is one of the prime manufacturers of nuclear fuel elements for the reactors of naval vessels and stationary power reactors. Our laboratory at M.I.T. is tied in with the tail end of the operation of their fuel elements. To my surprise and unbounded pleasure, our classmate, Mike Anthony, VIII, was my guide. He is manager of production of the nuclear division, having transferred there two years ago from his previous position as production manager of Rem-Cru Titanium, Inc., Midland, Pa. It was particularly intriguing to see the fantastically small tolerances which are permitted on those huge reactors which will drive ships or furnish power to communities. By comparison, the watchmakers' art is gross.

George Daniels, XIII, also is part of this era as head of a large engineering group in the Quincy Yard of the Bethlehem Shipbuilding Corporation. The nuclear cruiser *Long Beach* was launched not long ago and George's staff is busy preparing drillings for that vessel. I should say *was* busy, because the pickets are keeping the engineers and technical personnel out of the Quincy Yard in the long strike which has had such a sad effect on the economy of the South Shore area of Metropolitan Boston. George dropped in to see me the other day about some work that we are doing on the treatment of sewage on shipboard. Increased traffic on the Great Lakes from the St. Lawrence Seaway may lead to serious pollution problems of the water supplies of so many of the cities along the Great Lakes. Throwing wastes overboard is being legislated against because it can't be tolerated any longer. This brings up new problems of design for the shipbuilders.

The interesting part of my field of sanitary engineering is that everybody gets into it sooner or later and we can all wallow joyfully together, like Mike Anthony and George Daniels above, and now David R. Pryde, III. In his normal career he is plant engineering supervisor of General Electric in Pittsfield. He has recently been appointed by the mayor to be a member of the sewer commission. Several of our classmates are also on water commissions. — ROLF ELIASSEN, *Secretary,* Room 1-138, M.I.T.

'33

We made it, boys and girls. We have a member in the Hall of Fame! Yes, Prexy Pete du Pont was duly installed by the Methodists for his "unselfish gifts of time, counsel, thought, and energy" in Columbus, Ohio, on February 17. We happened by coincidence to see Pete the following day in Wilmington and learned that he had spent most of the night in airplanes trying to get home through the blizzard.

A note from popular and long-lost (to California) mate Bill Rand reports that he started on April 1 with the Kern County Land Company, headquarters in San Francisco. Bill will be responsible for the industrial and residential developments in Bakersfield, and a shopping center on company-owned land; he will also have in his purview several other enterprises. Bill cordially invites classmates to stop by to see him at the K.C.L. office in San Francisco. Sounds interesting, Bill. . . . Horace MacKechnie breezed through Boston recently and reported by phone that he thoroughly enjoys his new job with Sylvania in Buffalo.

We regret to report the death on February 1 of James J. Kelley who had been associated for many years with the American Dyeing Corporation in Rockville, Conn.

Arra (Steve) Avakian broke into the press for his speech last winter at the anniversary consecration dinner of St. Gregory the Illumination Church in Haverhill. Steve lives in Weston, and is chairman of the trustees of the Armenian Students' Association. . . . A further press release announces new headquarters and research facilities on Route 128 (Waltham) for Ionics, Inc., of which our productive and ever-busy classmate, Ed Gilliland, is president.

Come now, lads and lassies, and send in some grist for the notes. Get out from under the bushel and let us know what you are doing! — R. M. KIMBALL, *Secretary,* Room 3-234, M.I.T., Cambridge 39, Mass.

'34

It is with great regret that the death of Bruce Poehler is reported. Bruce, who was known as "Bud" to his Course VI friends and others around Tech, had been at the Boston Naval Shipyard for 24 years. Classmate Charlie Wright, who is the chief design engineer at the shipyard, very thoughtfully wrote us giving some background information about Bruce as follows: "Bruce passed away very suddenly Sunday evening, February 7, at his home in Medford, Mass. He was a graduate in electrical engineering, and except for a short period with the General Electric Company, he spent most of his career with the Boston Naval Shipyard. For the last two years he had been marine engineer in charge of the piping and ventilation branch of the design division.

"His outside interests were his home and a farm in New Hampshire. He was particularly active in youth work, especially Sunday school and the Boy Scouts. He was past president of the Boston chapter of the National Association of Naval Technical Supervisors, and earlier served as secretary of that society. His wife Jane and his younger son Warren are at home

in Medford. Warren attends Medford High School. His son Bruce is a sophomore at Virginia Polytechnic Institute and his daughter Anne Marie is a freshman at Bates College."

Gene Connelly, who did his undergraduate work at Notre Dame and then came to M.I.T. to earn his M.S. degree in electrical engineering, is continually gaining fame as a restaurateur. A recent article in the *New York World-Telegram and Sun* reveals how his engineering career ambitions went awry in 1937 when his father's death left him the responsibility of taking over the restaurant at 23rd Street and Third Avenue in New York City. Four years later he also opened a competing establishment just two blocks away at 110 East 23rd Street. The article speaks most highly of the special dishes and regular fare at both locations. Reading about Gene's exploits provokes again the thought that it would make very interesting reading if someone could write a story of M.I.T. graduates (or even 1934 class members alone) who have found "prestige, pride, and profit" in undertakings far removed from those indicated by their specific college training.

Among the members of our class who transformed an M.I.T. education into a medical career is Irvin Gahm. After graduation, five more years of study resulted in an M.D. degree from Tufts. The following year an Air Force career called for still more schooling, this time leading to active service as a flight surgeon. His war experience involved three years of overseas duty and he was discharged in 1946 to take up private practice. After 14 years of substantial professional activity in the Boston area, he has achieved many honors and much distinction. He is reported to be an avid bicycle rider and has had a fair amount of publicity for advocating bike riding as a health measure. In recent years he has understandably shown a less-publicized interest in motor scooter riding. This transition might have been obscured even better if he had not suffered a serious spill from (and with) his machine on a wet bridge surface in 1958. It is extremely difficult for a practicing physician to hide his crutches while making his rounds.

Irvin also has become a sailing enthusiast, operating out of the M.I.T. pavilion on the Charles River. I can vouch for his skill as a sailor having served spontaneously aboard his ship as part of his crew one day last June when a spanking Basin breeze was frequently shifting its direction about 90 degrees with little or no notice. Between his calls of "hard-a-lee," I gleaned a surprising amount of conversational knowledge about his past activities.

It would be a great favor if some of you members of the Class of '34, who are now engaged in insurance sales, politics, commercial fishing, the ministry, international relations, and so forth, would prepare a few paragraphs about the thread of personal history which covers the period of then-to-now (the last quarter century). Pick out any one of the secretaries listed below as an addressee, and let fly!—G. KINGMAN CROSBY, *Secretary,* Longwood Road, Huntington, W. Va.; other *Secretaries:* HAROLD E. THAYER, 415 West Jackson Road, Webster Groves 19, Mo.; MALCOLM S. STEVENS, Room 20B-131, M.I.T., Cambridge 39, Mass.; JAMES P. EDER, 1 Lockwood Road, Riverside, Conn.

'37

Bob Rudy writes that his firm, Robert P. Rudy Company, New York, N.Y., which deals in materials handling equipment, is still expanding. Bob is on the 25th reunion gift committee for New York City. . . . E. T. Herbig, Jr., is the sales manager for E. F. Johnson Company in Waseca, Minn. . . . George W. Ewald reports that he is: "still manager in the synthetic industrial fabric department at J. P. Stevens and Company, Inc., involved in everything, from making fabric for the mercury capsule recovery chutes and reinforcing the phenolic nose cones, to making rigid reinforcement fabric for bras. In accordance with a precedent established by prior classes, I would like to see our 25th on campus. This would give us a chance to renew ties with the Institute and to recognize how much each of us can contribute to the Institute in ways other than monetary. Also we can find out how the Institute can, if possible help us with our professional problems. I would like to see us take a tour of the Institute and then hold a reception for members of the Faculty." George, this is exactly the type of opinion needed to guide our 25th reunion committee. We have had only one other person in favor of an "on campus" reunion. The time is growing short for the final decision on the location of our 25th reunion. All who are interested should drop a card or letter right off.

Edward L. Swainson has been appointed technical assistant to the president of the military products division, American Standard, in Norwood, Mass. Ed was previously chief engineer of the division's components department and has been with the company since 1949. He and his wife Helen live in Newton with their three children. . . . Daniel Pilistine has been named Boston regional health benefit representative by the U. S. civil service commission. He will carry out the new federal employees health benefits program scheduled to go into effect in July, 1960. Dan joined the civil service staff in 1940. . . . Heard from Ralph Webster, who, with his wife Bunny has just finished a three-week tour in Europe. . . . Win Johns writes that he sees George Rundlet once in a while. George is with Caltex in New York and heads up the Marine Corrosion Division.—ROBERT H. THORSON, *Secretary,* 506 Riverside Avenue, Medford, Mass.; S. CURTIS POWELL, *Assistant Secretary,* Room 5-323, M.I.T., Cambridge, Mass.; JEROME E. SALNY, *Assistant Secretary,* Egbert Hill, Morristown, N.J.

'38

Gus Rossano, who was 1959 president of the Harvard Public Health Alumni Association, has recently been appointed to a position at the California Institute of Technology. He writes: "In the summer of 1954 I obtained my doctor of science degree in engineering from Harvard University, specializing in the field of air pollution. Then I served for five years in the air pollution engineering research program of the Robert A. Taft Sanitary Engineering Center in Cincinnati, Ohio. It is the engineering research center of the U. S. Public Health Service. From last July 1 to February 1, I was on temporary assignment to the California Department of Public Health as technical liaison officer from the U. S. Public Health Service to help in the development of ambient air standards and motor vehicle exhaust standards. The state legislature is now meeting to decide how and where to enforce these standards which call for control devices on the exhaust pipe of every automobile.

"On February 1, I began a permanent assignment at Cal Tech as visiting professor of environmental health engineering. The project is to set up a new course in air pollution and radiological health in a two and a half million dollar lab now under construction. Cal Tech is a fine school, perhaps the top scientific institute in the country, though it is conceded that M.I.T. is the best engineering school in the world. All Tech men are invited to drop in. Meanwhile, back at the ranch house, the family has been growing. We have three boys and four girls, with the ages ranging from 13 to ½ years."—DAVID E. ACKER, *Secretary,* Arthur D. Little, Inc., 35 Acorn Park, Cambridge 40, Mass.

'39

Here in Darien are two Course X graduate students who are affiliated with '39. They are Robert W. Gaines and Maurice F. Granville. . . . Bob Gaines, originally from New Haven, lives at 51 Buttonwood Lane, Darien, with wife and five children: two boys and three girls, ranging from 16 down to 7. Bob graduated from Yale in 1937, went to practice school in 1938 and was in Cambridge in 1939. He went immediately with Union Carbide Corporation, and has been with that company ever since. He is a sales development engineer, dealing in synthetic organic chemicals, and is located at the new technical service laboratory in Tarrytown, N.Y. Like many other Darienites, Bob is fond of the water, and is active in the United States Power Squadron.

Maurice "Butch" Granville hails from Austin, Texas, and received his undergraduate training at the University of Texas, '37. Like his friend Bob Gaines, Butch came to M.I.T. for practice school work and got his graduate degree in 1939. He also went directly to one company, Texaco, and remained there, rounding out 21 years this June. Currently, he is general manager in the petrochemicals department. Typical products of Butch's department are chemical intermediates, ammonia, and lubrication additives. Butch and his wife Janet live on Morley Lane, in the Delafield Island section of Darien, with their two young-

sters: Carol, 13, in junior high school, and Fred, 8, who is in elementary school. The Granvilles have been in Darien nearly two years, and have recently acquired a Cape Cod fiberglass 16-footer, called a "Bullseye," which will allow the family to take advantage of Long Island Sound sailing.

From the January 21, 1960, issue of the Norwood, Mass., *Messenger,* came news about Thacher Heath Fisk. He has been elected general counsel of the Kendall Company, manufacturers of textiles, surgical dressings, and polyethylene adhesive tapes, with 13 domestic and 4 foreign plants. Fisk started with Kendall in 1941 as a patent attorney, and since 1949 has served as director of Kendall's legal affairs. In addition to his degree from M.I.T., Fisk holds degrees from Suffolk University Law School and Northeastern University. His skills and interests make him a much sought-after Alumnus, for he is a trustee of the Natick (Mass.) Five Cents Savings Bank, a member of the corporation of the New England Deaconess Hospital, and a member and vice-president of the United States Trademark Association.

If space permitted, you could read here a fascinating three-page article from the United Aircraft Corporation *Beehive* about Wes Kuhrt. Wesley Amos Kuhrt, XVI, formerly of Longmeadow, Mass., is chief of research activities at United Aircraft's research laboratories. He and his wife Elaine live in Glastonbury, Conn., with their five children: three boys and a girl of their own, plus an adopted girl — Mina — from Korea, "just to help even things up." The United house-organ article includes four sparkling photos of Wes at work and at home; the lead picture shows him lifting perky Mina onto a pony.

One of the unsung activities of a class president is to follow up the loose ends remaining after a reunion. In a recent note, Bill Wingard wrote that it took him six long-distance phone calls and a letter to get the reunion photographer to produce that Snow Inn picture we've been awaiting so long. And Bill sent along his apologies, for the guy behind the black cloth didn't do nearly as good a job as the photographer that we had for the 15th reunion. For his own news, Bill and Anita live at 26 Blithedale Street, Newtonville, 60, Mass. They have four children — two and two — starting at 19 and going down to 3. Their 19-year-old is attending Manhattanville College, in Purchase, N.Y. Bill is in engineering with United-Carr Fastener Corporation, of Cambridge, Mass: "After many years in manufacturing management, my new engineering job gives me a good opportunity to work on some of the problems which were so frustrating during my earlier assignment."

An item from two other '39ers: Bill came across Aaron White at a technical symposium in Chicago, and vacationed last summer across the street from the Casselmans, at Cataumet on Cape Cod. "Good tennis there, and sailing — except when the kids regularly beat the Wingards and Casselmans in both tennis and sailing." — OSWALD STEWART, *Secretary,* 31 Birch Road, Darien, Conn.

'40

By now you have undoubtedly received the advance notice of the 20th reunion at Chatham Bars Inn on Cape Cod. Your secretary will be there and hopes to see all of you June 11 and 12.

From Chuck Godfrey comes word that he is a division leader at the Livermore Laboratory of the University of California. Chuck has been with the radiation laboratory since June 1951. At present he is trying to attend the reunion but is not sure he will be able to do so. . . . Vincent Kling has been elevated to a lifetime member in the College of Fellows of the American Institute of Architects, one of the highest honors in the architectural profession. Vincent was elected because of his outstanding contributions in the field of design. Many of the buildings designed by Vincent have received awards in both national and local competitions.

Charles Edwards has been appointed assistant general manager of Bendix Aviation Corporation. Previously, he was assistant director in charge of technical activities in their research laboratories. . . . Edmond P. DiGiannantonio has been named marketing manager for submarine signal operations of the equipment division of the Raytheon Company in Waltham. . . . At a time when members of the class are settling down to the prospect of grandchildren, we are pleased to report that we still have at least one adventurous soul about to embark upon the sea of matrimony. Barton Weller and Mrs. Maria von Wedemeyer Schniewind were married on December 27, 1959, in Easton, Conn. Barton is the president of Vitramon, Inc. — ALVIN GUTTAG, *Secretary,* Cushman, Darby and Cushman, American Security Building, Washington 5, D.C.; SAMUEL A. GOLDBLITH, *Assistant Secretary,* Room 16-325, M.I.T., Cambridge, Mass.; MARSHALL D. MCCUEN, *Assistant Secretary,* 4414 Broadway, Indianapolis 5, Ind.

'41

Louise Houssiere Herrington writes: "Since leaving M.I.T., I have worked as a drilling mud engineer and research chemist for Baroid Sales of the National Lead Company; as a micropaleontologist for Texaco; as a subsurface geologist for Standard Oil of Ohio; and as a teacher of geology at the University of Houston. The last few years I have been busy serving as a liquidator on various corporations. Since my husband's business at this time concerns oil leases and royalties, I too concentrate along these lines." The Herringtons have two children, and live in Jennings, La.

Don Scarff has been promoted to the position of general manager of General Electric's large lamp department in Cleveland, and feels that "leaving California is like pulling teeth." . . . Also in the General Electric news is Lew Jester, who has been named manager of the newly-established process machinery industries sales unit of the apparatus sales division. He will be responsible for sales of machinery to manufacturers in such fields as pulp and paper, textiles, plastics, testing, packaging and wrapping, and foundry equipment. Lew has been an application engineer with General Electric ever since 1941. He is married and has three children, Elizabeth, 15, Lew, III, 9, and Brian, 5. — IVOR W. COLLINS, *Secretary,* 9 Sunnyside Drive, Dalton, Mass.; HENRY AVERY, *Assistant Secretary,* Pittsburgh Coke and Chemical Company, Grant Building, Pittsburgh 19, Pa.

'42

The first two answers to our request for public school activity information were from James K. Littwitz and Edward F. Thode. Jim writes that he is vice-president of the board of education of the West Irondequoit Central School District, 370 Cooper Road, Rochester 17, N.Y.: "I would be happy to exchange information with other Board members."

Ed's letter says: "I wonder if the various interested parents know about the Working Group for Better Education. This loose and informal organization had its origin in the secondary education committee of the Association for Computing Machinery. (Further information obtainable from Computers and Automation, 815 Washington Street, Newtonville 60, Mass.) As for myself, I have been an officer of our local P.T.A. (Franklin School, Appleton, Wis.), and am presently a member of the city P.T.A. council. They tell me that if the nominating committee has its way at the next meeting, I may expect to be chairman of the latter group next year."

Congratulations are in order for David B. Nichinson. He was recently elected president of Kollsman Instrument Corporation, a subsidiary of Standard Coil Products Company, Inc. In a recent telephone conversation Dave gave me some idea of the wide range of flight instruments produced in this $50,000,000 a year operation. The range is from automatic celestial navigation systems to the well-known, widely used and old reliable altimeters. Dave manages a little traveling from his Elmhurst, Long Island, base to see the company facilities on the West Coast and in Germany.

In further correspondence with Ed Thode I enticed him into writing the following interesting letter: "You might say that my professional activities in recent years have pretty well centered around technical problems in pulping and papermaking. Although I am a member of six professional societies, most energy turns toward the Technical Association of the Pulp and Paper Industry (TAPPI). I am chairman of the systems engineering and operations research subcommittee of that organization and generally find some excuse to present a paper at one or more meetings during the year. At the annual meeting in New York, recently, I reported on an improved pulp evaluation technique developed at the Institute of Paper Chemistry. Next week (March) the lakes states section will have to suffer through my discussion of 'The Systems Approach

to Design and Operations,' and in June the Maine-New Hampshire section has asked to hear about 'Fundamentals of the Stock Refining Process.'

"For quite a few years my interest has been in the development of techniques for better control of the pulping and papermaking processes and in discovering basic information required for effecting such control. This interest has led into some strange byways, witness the titles of the various papers in the publication list of the Institute staff. (We note that Ed was senior author of seven of the 160 papers published in 1958 and 1959. One of these was in the *Journal of Physical Chemistry,* and six were in the TAPPI journal. — Ed.)

"In recent years two foci have developed: one is in the specialized area of the relation of fundamental physical and chemical properties of wood cellulose to the physical properties of paper, the other is the more diffuse area of process dynamics and automatic process control. I am presently responsible for graduate courses on process analysis, process control, applied kinetics and machine computation, but must give up some of these because of the accretion of other responsibilities. In my spare time, I sometimes stand off and ponder about the craze for machine computation which many of us have been guilty of aiding and abetting. I certainly hope all these figures *mean something!* It is interesting to observe that noted mathematicians become, frequently, inspiring philosophers as age overtakes them; *vide,* Descartes, Pascal, Whitehead. In a dim sort of way, I believe I begin to see why!

"On the personal side I would comment that Isobel and I are now in the 16th year of a very happy marriage. Our children, Karen, 11, Stephen, 8, and Jonathan, 4, are a source of much happiness and inspiration. We could ask for no greater riches than these."

Another technique your secretary has recently taken up for securing news for this column is calling the secretary of a research man and asking her, with her boss's permission, to send along a list of his technical publications. The first candidate was Milton M. Platt. Milt is vice-president of Fabric Research Laboratories, Inc., on Route 128 just outside of Boston. During the past 10 years he has published 17 papers on various aspects of fibers, yarns, and textiles. The *Textile Research Journal* carried most of them; others appeared in the proceedings of the scientific section of the Toilet Goods Association, "Some Aspects of the Mechanical Behaviour of Hair"; proceedings of the First National Congress of Applied Mechanics; journal of the Textile Institute; and TAPPI, "Cord Fatigue in Fleet Tested Tires." Specific references to either of the above set of papers are available from the authors or from your secretary.

If we were in the business of publishing the American counterpart to the Michelin *Guide de France* we would issue two stars to the "Hob Knob" of Manchester, Conn. Mark Kravitz is proprietor, policy maker, promoter, and chief taster of this unusual eating place which, we think, rates *table excellente, mérité un detour.* Delicatessen is a specialty of the house. The menu is long, varied, delicious, and surprisingly reasonable considering the huge portions. The Hob Knob is not far from United Aircraft Corporation, so that my business trips to the latter include long lunch sessions at the former. If I were to make the trip much more often my ample but well-preserved waistline would show a differential expansion.

Jerry Coe wrote recently, after a business trip (and perhaps pleasure, too) to the National Boat Show in New York City, that Warne P. Johnson is general manager of the Pettit Paint Company of New Jersey. Old time yachting folks surely know of this highly regarded manufacturer of quality marine paints whose motto now is, "Don't Paint It, Pettit." It is undoubtedly too late to buy this year's paint from Warne but you may wish to note for follow-up in January 1961 that Warne will be on hand at the Boat Show — his usual, wonderful, hospitable self.

It warms our heart to report this month that, after two columns of material, we haven't even reached the usual stack of newspaper clippings, press releases, and address changes. Next month we shall report the news on hand about Messrs. Grogan, Imsande, Altman, Yocom, Renner, and Forbush. In the meantime please pass the word along to your corporate and university public relations managers that their press releases about you are welcome additions to our file of news.

Happy spring planting, boat sanding, and relaxed sunning from — Ed Edmonds, Bob Keating, J. J. Quinn, and Lou Rosenblum, *Secretary,* Tech/ops, Burlington, Mass.

'43

We received a fine letter from Bob Anderson as follows: "I know the news you've been getting from our class has been rather sparse so I thought you'd like to hear of my recent trip. Pat and I just got back from a week in Puerto Rico and a trip to St. Thomas. A great deal of that week was spent with Angel Gonzalez and his lovely wife Ani who were wonderful to us. They were grand hosts and showed us all there was to see on the island from El Junque to La Concha. The Gonzalez have five children age 14 years through 8 months. As you can see they are faithful to the letter A—Alfredo, Angel, Jr., Augusto, Armando and baby Ani Marie. This summer the two oldest boys will be coming to Camp Monomoy on the Cape to brush up on their English. I guess Angel is getting them ready to come to Tech.

"Angel is running a successful general contracting company in San Juan and even though Puerto Rico is small he covers his jobs by flying to them. He says to tell you that if all goes well during the next three years he and Ani will be seeing us all at the 20th reunion." Bob and Pat Anderson live at 95 Wachusett Road, in Needham, Mass. Bob is a senior partner of Ganteaume and McMullen, engineers and architects in Boston. His firm has done outstanding work in the East in the design and construction supervision of buildings and large warehouse facilities.

Hank Tiedemann and John F. Moran, who is international vice-president of the International Longshoremen's Association, debated the question of automation on the waterfront last winter. W. H. Tiedemann and company, Hank's firm, are consulting engineers, on automation, to the shipping industry. From the clipping which was received, it appears that both debaters concluded that automation will move cargo more economically, and that the longshoremen are not against automation but that they would share in the profits of the increased productivity. The debate was held before the Society of Naval Architects and Marine Engineers.

Robert Anicetti, a graduate of Bates College, who received his doctorate at M.I.T. with our class, was honored recently when he was named to the *Sports Illustrated* silver anniversary all American team, composed of football players of 25 years ago who have become outstanding business or professional men. Bob, who played guard at Bates College, is now a nuclear fuels chemist at the Hanford Atomic Projects Operation, Richland, Wash. . . . Irenee duPont, Jr., was the speaker at the December meeting of the Burlington-Lake Champlain Chamber of Commerce, in Burlington, Vt. People in the Burlington area were quite encouraged by his visit, in view of the fact that the area has been pessimistic due to the plans to close the Air Force base there.

Russ Bowen was one of the participants at a meeting of the Armed Forces Communications and Electronics Association, Boston chapter, which was held in January. Russ is a major in the Army reserve, military intelligence, and in civilian life is a senior chemical engineer at Arthur D. Little, Inc. . . . News of classmates on the move discloses that Charlie Swet moved from San Diego, Calif., to Silver Spring, Md.; Robert Dix from Baton Rouge, La., to New Canaan, Conn.; and Myron Shoffner from Freeport to Kittanning, Pa. That about covers it for this month. If you have news to write don't be bashful. In the meantime it's not too early to plan on attending Alumni Day in Cambridge this June. We hope the weather will be more favorable this year. — Richard M. Feingold, *Secretary,* 10 North Main Street, West Hartford 7, Conn.; *Assistant Secretaries:* Christian J. Matthew, Arthur D. Little, Inc., 314 Battery Street, San Francisco, Calif.; John W. McDonough, Jr., 413 North Miami Street, Wabash, Ind.

'45

There is still plenty of time to make your 15th reunion reservations at Snow Inn, Harwichport, Mass., for the weekend of June 10-12. Just because you have misplaced the various data forwarded by your committee, don't feel embarrassed, just act promptly! Forward your $10.00 registration fee to M.I.T., Class of 1945, Post Office Box 36, Framingham Centre, Mass., indicating day and time of arrival. Your hotel reservations, travel directions, program, and so forth, will be forwarded

promptly. Although it is a well worn cliche, I know you will agree that the more the merrier.

Your reunion committee has left no stone unturned in their efforts to make your weekend a memorable one, all we ask is your attendance and we shall care for the rest (room and personal bar bills excluded!). At the most recent committee meeting George McKewen indicated that the only sport he could program was that ancient game of throwing one's room key into a hat. Yes, George is now in charge of favors and Bob Maglathlin will plan the sports program. I have spent this entire day reviewing class records endeavoring to make a list of all those who might possibly attend the reunion. If your reservations were not received promptly you have, undoubtedly, heard from us by phone or mail urging your attendance. The reunion is for you, the members of the class. Plan to attend for your classmates are looking forward to seeing you.

The most recent issue of the General Motors *Engineering Journal,* reports that Ed Fryer, a senior project engineer, has been granted a patent for a double ratio lever mechanism. . . . Stanley Chemical Company, a subsidiary of The Stanley Works, recently announced the appointment of Horace Wood, Jr., as sales representative for eastern Connecticut, eastern Massachusetts, and Rhode Island. Horace was previously with Rohm and Haas in New York in technical sales and research work. . . . Tom Hewson, Director of technical planning at St. Regis Paper in New York, presented a paper entitled "Simulation of Pulpwood Inventory Dynamics," at the 45th annual meeting of TAPPI, a technical association of the pulp and paper industry.

Ed Stoltz wrote in late February that the entire Pittsburgh contingent would be at Snow Inn in June. The boys had a warm-up session February 22 as the local Pittsburgh M.I.T. club polished off a keg of beer in the course of a regular meeting. I wonder how much beer would have disappeared if the meeting had been irregular? . . . I spent a very pleasant evening with Jerry and Libby Patterson in Binghamton, N.Y., last week. The Pattersons have just moved to a much larger house — same street — new number. Yes, the 15th reunion was the topic of conversation as it will be at the Hickeys in Moorestown, N.J., next week. — C. H. SPRINGER, *Secretary,* Firemen's Mutual Insurance Company, 420 Lexington Avenue, New York 17, N.Y.

'46

I shall apologize right away for the brevity of this column. It is being written only a week or so after the April column was written because I am leaving shortly for my annual Naval Reserve training duty, and I won't be home again until after the due date for May. In reading my orders I received quite a shock. I'm sure I'm not alone in feeling as young (or almost) as when I attended M.I.T. But there on the orders was a statement that I have had almost 17 years of naval service. Seventeen years! I was only 17 when I entered M.I.T. Gosh, how time flies. It seems only yesterday that we were attending our 10th reunion, and in only a year we shall be heading off for our 15th. I hope everyone who reads this will plan right now to attend the reunion and make it the biggest and best ever.

Sheung S. Chin's letter was the only one received in the past week. Those of you who have been putting off writing for fear of seeing your name in print, please do write. I promise it won't hurt a bit, and your old friends will be very glad to hear of you and learn of your doings. Sheung writes to say he expects his book, *Elements of Missile Configuration Design,* to be published by McGraw-Hill in August. The book is an outgrowth of a training course he gave at the Martin Company, Orlando division, where he has been employed since March, 1946. He has been working actively in the missile field since 1949, and is the aerodynamic chief of staff at Martin-Orlando. Sheung was married in 1947 and now has three children, one daughter, and two sons. The Chins live at 624 Glenarden Road, Winter Park, Fla. — JOHN A. MAYNARD, *Secretary,* 15 Cabot Street, Winchester, Mass.

'47

Now that all of you have dug your respective ways out of the late winter snowdrifts your correspondent wants to publicly apologize to all faithful readers who have begun to wonder whether there really was a Class of 1947 secretary. There was and there is, and here's a brief rundown on information he's been able to glean from the less than meager notes from class members, and from information happily obtained directly from the Institute.

In the realm of business advances, we have been advised of the following promotions: Carroll A. Andrews, as an advisory engineer at the Kingston, N.Y., laboratory of IBM . . . Raymond G. DeBiase as a communications engineer in the research laboratory of the General Electric Company at Schenectady, N.Y. . . John J. Barrett as general exchange engineer of the New England Telephone and Telegraph Company . . . Neil M. Blair as vice-president of Intelex Systems, Inc., of New York, a division of IT&T . . . Walter R. Derlacki as assistant research director of Luria Bros. iron and steel scrap brokers in New York City . . . Kenneth L. Block as a partner of the management consultant firm of A. T. Kearney and Company of Chicago . . . Ned Garrett as captain in the Navy, while serving as the U.S. Naval inspector of ordnance with the Aerojet-General Corporation of Azusa, Calif. . . B. L. Averbach as chairman of Alloyd Corporation, which company was recently purchased by the Copper Range Company . . . Harry C. Dedell as member of the board of directors of the Connecticut Fire Brick Company in Bridgeport . . . John G. Holmes as assistant manager of the Pittsburgh region for the Union Carbide Metals Company, division of the Union Carbide Corporation.

A post-doctoral fellowship offered by the National Science Foundation was awarded to David H. Frisch, who will study in Switzerland. . . . William W. Caudill of Caudill, Rowlett, Scott and Associates of Houston, Texas, has been elected to the editorial advisory board of *Overview,* the new magazine for all educational administrators. His firm specializes in the planning and design of schools and other educational facilities. . . . Charles W. Hoover, Jr., of Bell Laboratories has written an article on the "Flyingspot Store," a digital information-storage system based on electro-optical principles developed by Bell Labs.

Arnold O. Putnam, director of research for Rath and Strong, consultant firm in Boston, spoke to the Springfield chapter of the American Institute of Industrial Engineers on "Indirect Incentives — Measurement and Technique." . . . Eugene Wejman, a product planner at General Electric's voltage regulator product section in Pittsfield, Mass., was appointed chairman of the local YMCA's annual membership campaign. . . . On the personal side, we received a notice from the E. Russell Johnstons of the arrival of Bruce Philips Johnston on December 24, 1959. . . . Thomas E. Sterling was married to Constance Knight some months ago. Congratulations to all concerned.

That's it for now; maybe I'll see you at Alumni Day, June 13? If you haven't yet, don't forget the 1960 Alumni Fund — the drive ends June 30. — ARTHUR SCHWARTZ, *Secretary,* 8355 Blackburn Avenue, Los Angeles 48, Calif.

'48

The mail pouch is slim this month. Yet even the four notices received indicate the wide diversity of our class's activities. First, we learned that Robert S. McClintock, Jr., has joined National Can Corporation as assistant to the president. Now living in Hinsdale, Ill., with his wife and three daughters, Bob will be working in areas concerned with manufacturing. . . . Henry Warner has become associated with Hirsch and Company, members of the New York Stock Exchange, as manager of their Newark branch. Henry, who started with Merrill Lynch et al and was named their rookie-of-the-year, now also teaches investment courses in the New Jersey adult education program. He resides in Union, N.J., with his wife and two daughters.

Lieutenant Colonel Nils M. Bengtson is director of the ordnance missile laboratory division of the Army Rocket and Guided Missile Agency. Colonel Bengtson was recently honored for his "exceptionally meritorious service" to the Army and its high priority missile programs. Nils is the father of a boy and girl. . . . In addition to manufacturing, investment, and military activities, one more activity remains to be reported. William E. Katz, Treasurer of Ionics, Inc., of Cambridge, Mass., has joined the ranks of his married colleagues. For their wedding trip, Bill and Elizabeth Katz went to Jamaica, B.W.I. — RICHARD H. HARRIS, *Secretary,* 26 South Street, Grafton, Mass.; HARRY

G. JONES, *Assistant Secretary*, 94 Oregon Avenue, Bronxville 8, N.Y.; HERBERT S. KINDLER, *Assistant Secretary*, Instrument Society of America, 313 Sixth Avenue, Pittsburgh 22, Pa.

'49

A wedding heads the news this month. On December 26 Miss Hope Ingersoll was married to Mr. John Swift Anderegg. (See April notes for the engagement announcement and biographical details.)

At the TAPPI meeting in New York City in February, Burt Mendlin presented a technical paper entitled, "New Methods for Production Control of Colloidal Silica Anti-Slip Applications on Corrugators." Burt is production manager, container division, Cornell Paperboard Products, Milwaukee. . . . Paul V. Osborn, Jr., has been appointed manager of mechanical engineering for the Kordite Company, where he will be responsible for all mechanical development projects. Paul holds an M.S. degree in mechanical engineering from M.I.T., as well as a B.S. gained in 1949. . . . J. Arthur Matey is assistant director of methods research of the Prudential Insurance Company, in Newark, N.J. . . . William E. Duggins (Ph.D., 1949) has been appointed supervisor of product development for the dyestuff and chemical division of General Aniline and Film Corporation.

The next installment of last year's questionnaires continues below. Again the reminder that present tense refers to late spring 1959.

Kenneth M. Prytherch,XV, lives at 295 Beech Terrace, Wayne, N.J. He is a salesman for General Aniline and Film Corporation, responsible for the introduction of dyestuffs and chemicals in the territory covered and for maintaining and increasing established business. Married (Sofia), two children, boy six, girl five. Pet: one goldfish. Owns home in the country. Has held one job since graduation.

Harold E. Rorschach, Jr., lives at 3547 Bluebonnet, Houston, Texas. He received a B.S. in Course VIII, an M.S. (1950), and Ph.D. (1952) in physics from M.I.T. He is an associate professor of physics at the Rice Institute in Houston. Married (Virginia), two girls, three and one and a half. Owns home in suburbia. Has held one job since graduation.

Garland S. Sydnor, Jr.,IX, lives at 8 Tapoan Road, Richmond 26, Va. He is vice-president of Sydnor Pump and Well Company, Inc., having executive responsibility for complete company operations. Married (Joyce). Pets: three, one dog, two cats. Owns home in suburbia. Has held one job since graduation.

Kemon Taschioglou lives at 14 Hillside Avenue, Cambridge, Mass. He received a B.S. in Course VI, Option 4, and an M.B.A. from Harvard Business School in 1951. He is industrial sales manager for Polaroid Corporation, selling, promoting company to industry. Bachelor (hunting). Has apartment in urbia. Has held three jobs since graduation.

Edward J. Walz, Jr., lives at 61 Edwin Place, Asheville, N.C. He received a B.S. in Course X, and took further courses in business administration at Boston University and Northeastern University. He is an independent management consultant, helping managements to better control their business operations. Bachelor (hunting). Has apartment in suburbia. Has held four jobs since graduation.

Emilio Jose Venegas lives on Avenue H, No. 418 (Box 1283) Ext. La Rambla, Ponce, Puerto Rico. He received a B.S. in civil engineering. He is vice-president of Ponce Builders Corporation and is chief engineer of his company. Married (Marlene), two children, girl six, boy four. Owns home in suburbia. Has held four jobs since graduation.

Walter E. Seibert, Jr., lives in Apartado 285, Saltillo, Coahuila, Mexico. He received a B.S. in Course XII, mining, and an M.S. in mining geology from M.I.T. He is vice-president and general manager of Cia. Minera Julieta, S.A., Saltillo, Coahuila. His duties include exploration, geology, mining, milling, and selling fluorspar ores, maintenance of mining, milling, power generators, radio equipment, complete laboratory, technical and management services. He comments that every American should have to live outside the U.S. for at least one year to really appreciate what he has; and that if many more foreigners could visit the U.S. for two weeks, we would no longer have world relation problems. Married (Lucille), five children, two boys, six and five, three girls, four, two, and one. Pets: one dog, one turtle. Owns home in urbia. Has held six jobs since graduation.

Kenneth Kelton,X, lives at 18 South Munn Avenue, East Orange, N.J. He is assistant engineer of utilization for Public Service Electric and Gas Company, assisting in the management of a gas appliance testing laboratory, serving on various committees of the American Gas Association, writing standards for appliance testing and approval, giving technical advice for the solution of gas utilization field problems. Married (Nancy), two girls, three and four months. Rents apartment in suburbia. Has held two jobs since graduation.

Edward H. Somma lives at 81 Fleetwood Drive, Waterbury, Conn. He received a B.S. in Course II, and an M.S. in mechanical engineering in 1950 from M.I.T. He is secretary and general manager of Waterbury Machine Tools and Products Company, Inc. Married (Vera), one girl, four months. Pets: two dogs. Owns home in suburbia. Has held one job since graduation.

Paul E. Weamer,XV-A, lives at 10 Sagamore Road, Arlington, Mass. He is in charge of New England sales for Coffee Time Products of America, Inc. Married (Virginia), three children, two girls seven and five, boy three. Owns home in suburbia. Has held four jobs since graduation.

David C. Moore lives at 92 Page Road, Bedford, Mass. He received a B.S. in Course XVII, an M.S. in economics from M.I.T. in 1950, and took courses in business at Drexel Institute of Technology, as well as in safety engineering and welding metallurgy at the University of Delaware. He is assistant leader of a construction engineering group at M.I.T. Lincoln Laboratory, co-ordinating design and construction of field sites required by laboratory research programs. Married (Marjorie), three children, two boys four and two, and one girl one. Pets: one dog. Owns home in suburbia. Has held two jobs since graduation.

Herbert M. Federhen,VI-A, (Captain, U.S. Army), Quarters 1-31, is at West Point, N.Y., as an instructor in electrical engineering. Married (Verne), four children, two boys six and two, two girls four and one. Pets: fish. Lives in apartment on the army post. Has held two jobs since graduation.

Robert P. Talambiras lives at 248 Central Street, in Auburndale 66, Mass. He received a B.S. in Course VI-A, Option 3, and an M.S. in electrical engineering from M.I.T. in 1950. He is director of engineering for Epsco, Inc., responsible for maintaining a high level of technical competence in the company by establishing training programs, establishing and enforcing standards by supervising and checking all design work with the assistance of a staff of specialists, and by properly utilizing the technical competence in the various divisions of the company. Married (Enid). Pets: two dogs. Rents apartment in suburbia. Has held two jobs since graduation.

Randall J. Hogan, Jr., II, lives at 23 Eleanor Road, Framingham, Mass. He handles production liaison engineering for Raytheon, reviewing prototype design in production and modifying design as indicated by review of function of producibility. Married (Eleanor), four children, two girls six and five, two boys three and a half and one and a half. Owns home in ex-urbia. Has held three jobs since graduation.

Jack L. Baker lives at 54 Azalea Drive, Norwood, Mass. He received a B.S. in Course II, design, and an M.S. in mechanical engineering from Northeastern University (1955). He is senior electronic engineer for American Standard, military products division, Norwood, Mass.; assistant project engineer in charge of electrical engineering for radiometric sextant prototype for a submarine; in charge of 10 engineers and $500,000 in subcontracts. Married (Mary Ann), four children, two girls six and a half and one, two boys, five and a half and three. Owns home in suburbia. Has held four jobs since graduation.

Richard H. Witherell,VI-4, lives at 1162 West Street, Wrentham, Mass. He is project engineer for Foxboro Company. Married (Nancy), four children, three boys, 16, 14, and four, and one girl five. Pets: two dogs, cat, two horses, and one duck. Owns home in country. Has held one job since graduation.

Walter A. Row, Jr.,II, lives at 42 Longmeadow Road, Weston 93, Mass. He is sales engineer for the Airadyne Company, handling design and construction of air pollution systems. Married (Kay), four children, three girls, nine, seven, six, and one boy two. Owns home. Has held one job since graduation.

John Marvin,IX-B, lives at 88 Beacon Street, Boston 8, Mass. He is manager and vice-president for Saltesea Packing Company. Married (Ann). Pets: two baby pigeons on window ledge. Has apartment in

urbia. Has held three jobs since graduation.

Robert C. Lincoln lives at 9 Pinehurst Road, Belmont 78, Mass. He received a B.S. in Course XIII, Option C, and is a candidate for a master's in business administration at Northeastern. He is handling general administration duties with a cryogenics engineering group at Arthur D. Little, Inc., working on an Air Force ballistic missile program. Bachelor (hunting). Lives at parents' home (for the cooking) in suburbia. Has held six jobs since graduation.

Willard F. Heintz lives at 33 Ash Street, North Attleboro, Mass. He received a degree in Course IV-A, and was a special student in Course XVII. He is an architect for Joseph Mosher Associates, Architects and Engineers, Providence, R.I. Bachelor (engaged). Rents home in the country.

Henry L. Henze,II, lives at Connetquot Drive, Oakdale, N.Y. He is preliminary design weapons systems section leader for Grumman Aircraft Engineering Corporation, directing and assisting in the analysis, development, and preparation of proposals for new projects and product improvement with particular regard for weapons systems and armament. Married (Ruth), three children, two girls seven and five, and one boy two. Owns home in suburbia. Has held two jobs since graduation.

Emmert M. Lowry, Jr., lives at 153 Vestal Road, Vestal, N.Y. He received a B.S. in Course I, an M.S. in civil engineering from M.I.T. (1951) and an M.B.A. from Harvard Business School (1956). He is personnel manager for IBM Endicott product development laboratory. He supervises the personnel department which consists of approximately 30 people and four separate departments including recruiting, personnel administration, engineering education, and management education. Married (Alice), three children, one boy 12, two girls eight and six. Pets: one dog, one cat, one parakeet. Owns home in suburbia. Has held three jobs since graduation. — FRANK T. HULSWIT, *Secretary,* 14 Nadine Road, Saxonville, Mass.

'51

We were embarrassed to discover, when we started putting this column together, that three interesting post cards had been misfiled almost a year ago and were never mentioned in the class notes. Although they are hardly current at this point, they still seem worth mentioning. Carl Walker wrote that he was a sales engineer with A. D. Little, specializing in cryogenics, and that he had recently enjoyed a visit from Jack Sewell and family. Jack, he said, had spent over four years in Saudi Arabia with Aramco. . . . A note from George Thompson told of his having joined Stromberg Carlson as part of a team to develop an Air Force counter measures facility. George had worked on both the Meteor and Rascal missiles and served two years in the Army at Fort Bliss before starting with Stromberg Carlson. . . . The third card was from Roald Cann, who was literally down on the farm in Ascutney, Vt. Roald and his wife inhabit 150 acres in Ascutney, where Roald is employed by the Bryant Chucking Grinder Company.

By way of class business, Marv Grossman and Bill Shenkle have been signed up as salesmen on behalf of the Alumni Fund. They will follow in Fred Weitz's large footsteps as class agents. We are interested to see if their letters can top Fred's for sheer persuasiveness.

The Air Force has assigned John DeWitt to the ballistic missile division of the air research and development command. John and his wife have a young daughter, Heather Anne. . . . Tony Kurtz is chief scientist of the newly formed Kulite-Bytrex Corporation of Newton, Mass. The company specializes in semi-conductor strain gages and related devices. . . . Bill Fincke, who has been designing fire control, bombing, navigational and inertial guidance systems since receiving his master's degree in 1955, was recently employed as senior engineer in the systems engineering department of Sperry Gyroscope Company. . . . Also at Sperry Gyroscope, Kenneth Forsberg has been promoted to engineering section head for radar research in the advanced studies engineering department of the surface armament division. . . . Charles Ellis is assistant chief engineer at the Kaman Aircraft Corporation in Bloomfield, Conn.

Bob Cushman is with the Argonne National Laboratory and has been assigned to the Atomic Energy Commission's national reactor testing station at Idaho Falls, Idaho. Bob was with the nuclear division of the Martin Company from 1955 until 1959, and was with the Carrier Corporation prior to that time. . . . Charles Maki is chief development engineer for accessories at M.B. Electronics in New Haven. His work centers around the design of complex control circuitry. . . . Epsco, Inc., of Cambridge, has appointed Bruce Smith as assistant to the president for advanced product technology.

If you drive your car over enough of the U.S.A., the chances are good that you will use one or more of the major highway projects in which Winfield Salter has had a hand during the past nine years. Win is with the firm of Parsons, Brinckerhoff, Hall and MacDonald and has participated in a wide variety of highway and airport work, including the New York State Thruway and the Garden State Parkway. In addition, he has been in charge of the firm's electronic computer department since that department was established, working to apply high-speed computation to problems of civil engineering analysis and design.

Wallace Lebowitz writes that he is currently a research fellow in medicine at Harvard Medical School and research fellow in cardiovascular diseases at the Thorndike Laboratories of the Boston City Hospital. Wally completed his medical studies in 1956 and served his internship and residency at Boston City Hospital. He married Sylvia Greenberg in the summer of 1958, and they now have a son, Adam Wayne.

An article from the *Times* of Woburn, Mass., dated last October 23, tells us that Randall Gibson has become minister of the First Unitarian Church, in Woburn. Randy studied at Harvard Divinity School after graduating from the Institute, and was ordained in 1956. He is married to the former Helen Elizabeth Robbins of Attleboro, and they have two children. — RICHARD W. WILLARD, *Secretary,* Box 105, Littleton, Mass.; ROBERT S. GOOCH, *Assistant Secretary,* 107 Danciger Building, Fort Worth, Texas.

'53

On the Friday night preceding Alumni Day, June 10th, we are planning on joining hands with the classes of 1952 and 1954 and having an informal get-together at the M.I.T. Faculty Club (cocktails, dinner — pay-as-you-go-basis — starting about 6:30 P.M.). There should be a large number of mutual friends in the crowd. Do hope many of you will make an effort to be on hand. If you have any questions, call Paul Shepherd at Cabot, Cabot, and Forbes, Inc. (or at REading 2-3605-R), or me at M.I.T. (or at TRowbridge 6-1043).

Tom Faulhaber and Nancy Reid were married the second Saturday in February in West Hartford, Conn. They took a two-week honeymoon (somewhere in the West Indies, I think), and returned just in time for Boston's record-breaking snowstorm. Jolly! They're living at Tom's 100 Memorial Drive apartment which overlooks the Charles River. . . . Jeff Davis stopped for his "annual visit" while interviewing seniors at the M.I.T. Placement Office for his firm, Dewey and Almy. Looked hale and hardy, but confessed that he had no news. (He did buy me a cup of coffee, though.)

Al and Jackie Danzberger skip-ee-doo-ed out of the city without my finding out where in sam-hill they were going. I do know they (that is, he) changed jobs and are now living in Tonawanda, N. Y. (Al, how about bringing us up to date?) . . . Another classmate leaving the Boston area is Mandy Manderson. He, Annie, and the three kids are abandoning their Acton farm next week and moving to Atlanta, Ga. Mandy will be the technical director of the nitrogen phosphate (that's a nice name for fertilizer) division of the Armour Agriculture Chemical Company. . . . Saw Frank Turcotte recently. He was taking a course in preparation for the New York State professional engineer exams. . . . Dick Salter, who is a research assistant in the Mechanical Engineering Department here at M.I.T., became engaged. . . . All of you who haven't broken your arms while skiing please drop me a line. — MARTIN WOHL, *Secretary,* Room 1-131, M.I.T., Cambridge 39, Mass.

'54

Since joining Uncle Sam's fighting forces last October, I have been rambling around the country so much that class news has had a hard time catching up with me. However, I am now fairly well settled in the Washington area, and should be able to receive and dispense news with a little more dispatch. So let

me know, at my new address given below, the latest about yourself.

During the past several months another hardy group of classmates has trod down the aisle to wedded bliss. Arnold Tubis and Charlotte Litman were married in Salem, Mass., last summer. Arnold has acquired his Ph.D. in physics from Tech, and is an assistant professor at Worcester Polytechnic Institute. . . . Dick Eaton married Beverly Jane Gillon on August 15 in Reading, Mass. Our latest report indicates that Dick is with the army. . . . Carolyn Thacher was the bride of Don White in Fitchburg, Mass., on September 5. The Whites are living in Westminster, Mass. . . . Roy Kaplow and Frances Freedman were married in Swampscott, Mass., on August 22. Roy has his Ph.D. in metallurgy from M.I.T., where he is now working. . . . Ernie Abrahamson married Jane Storey in the M.I.T. chapel on September 26. Ernie is drawing his paycheck at the Massachusetts Arsenal in Watertown, Mass. . . . On November 21, Dick Finn and Elaine Fleming took the plunge in New Brunswick, N.J. Dick is a nuclear power consultant for the American Electric Power Service Corporation in New York City.

In other recent developments, several members of the class have risen to new heights in the world of industry. Kevin Woelflein has been appointed to the staff of the long-range forecasting section of Atlas Powder Company's development appraisal department. . . . Al Vinal is an advisory engineer in digital circuits at IBM's Owego installation. . . . Dick Taylor is a staff engineer in the IBM advanced systems development division in Poughkeepsie, N.Y. . . . Gene Leary is a physicist with General Electric in Schenectady, N.Y., working in the semiconductor studies division.

Bob Evans writes that he received his Ph.D. in economics from the University of Chicago last August, and is now an assistant professor of industrial relations at M.I.T. Bob and his wife Lois have a new daughter, Karen Elaine. And that about dries up our news supply. Now that you know where I am, how about dropping me a card or letter to replenish the supply? — Edwin G. Eigel, Jr., *Secretary,* 321 North Thomas Street, Apt. 2, Arlington, Va.

'55

Being that the reunion is uppermost on our minds these days, we open the column with a word from Len Wharton, co-chairman of the reunion committee: "Our 5th reunion plans are completed. The response to our first bulletin has been excellent — about 150 classmates answered, and 95 said that they hoped to come on the weekend of June 11 and 12. The location of the reunion has been moved to the Woodbound Inn in Rindge, N. H. — about one and a half hours from Boston, and five hours from New York. The committee will make provisions to meet classmates who will be arriving in Boston by plane or train, to take them to the reunion. Bring your wife or best girl to meet your M.I.T. pals, and be prepared to enjoy yourself."

Phil Untersee brings us up to date in his reunion return as follows: He is married to Mary Pigoff, and they have two daughters, Mary Beth and Patricia Anne. Phil is the assistant research editor for McGraw-Hill's *Chemical Week,* and lives in Newark, N.J. . . . Pete Toohy is with the sales development department of Shell Chemicals, plastics, and resins division in New York City. . . . John O'Loughlin expects to visit the reunion from Hayes, Kansas. He is president of O'Loughlin Electronics, a division of O'Loughlin Motors, and tells of two male junior operators for the ham rig.

A very nice invitation was received from Martin Buote to his ordination to priesthood at St. Thomas More's Church in Somerset, Mass. . . . Ed Ehrlich writes of a daughter, Susan Marie. He is an industrial engineer with Western Printing and Lithographing Company in Poughkeepsie, N. Y. . . . Roger Joy is on a National Institute of Health Fellowship in Birmingham, England, after spending two years in the Army Chemical Corps. . . . George Harper is with Joseph Kaye and Company, Consulting Engineers. He and Jane enjoy the patter of eight little feet at their home in Boston (two Bassett Hounds). . . . Les Gordon writes from Stamford, Conn., that he is married to Adele Berkowitz. Les is a financial analyst with ACF Industries in New York City, and expects his M.B.A. from New York University in June. . . . Al Glueck is back in Cambridge with Microtech Research Company, while piddling in Beacon Hill real estate on the side. . . . Doug East writes from South Braintree that he is at M.I.T. working for his Sc.D. in Course II. . . . Jim Eacker seems to have time to be executive secretary of the Educational Council at M.I.T. in-between his duties as co-chairman of the reunion committee. Jim was married to Georgia Hafner of New York City in 1956, and collected his M.S. in Course XV in 1958. They are living in Sherborn, Mass.

Gary Brooks is with Distillation Products Industries, division of Eastman Kodak in Rochester, N. Y. A baby is due at reunion time, but Gary hopes to be able to attend. . . . Henry Theis was married recently in Chicago, and honeymooned in Bermuda. Bob Morgan and Warren Lattoff were among the ushers. . . . Norm Poulin writes from Union City, N. J., that he was married to Louise Daniels in 1958, and now has Linda Patricia. He does operations and market research for Belding, Heminway, Corticelli Company in New York City. . . . Marty Shooman is at Brooklyn Polytechnic Institute, and expects a doctorate in electrical engineering in June. . . . Lieutenant Al Preyss is a jet instructor pilot for the U. S. Air Force in Texas. He is hoping to return to M.I.T. for an S. M. on his next tour of duty.—Mrs. J. H. Venarde, *Secretary,* 107 Mullin Road, Wilmington, Del.; L. Dennis Shapiro, *Assistant Secretary,* 15 Linnaean Street, Cambridge 38, Mass. ELiot 4-4901.

'56

Have been visiting and talking to our group and the administration at Tech. A must on your next visit to Cambridge is the DuPont Athletic Center which has given new concept to Tech athletics. In the last stages of planning are the Burton dining facility, a parking garage, and a new 20-story earth sciences laboratory (to be built in the middle of the east campus parking lot). It will be quite a different campus by June, 1961. . . . Serious planning is needed for the fifth reunion and we are open for volunteers for the reunion committee. There was a meeting at Tech in March for preliminary information.

Last year about 100 of our group heard from me via dual post card and I shall try to enlarge the number this year. Recent answers have come from the following: Kirk Brogden writes that he is with Stone and Webster Engineering Corporation and is in Brazil on a power plant startup. . . . Phil Bromberg wed Nancy Lee Kentor of Pittsburgh in December 1959. Phil received his M.S. in chemistry at Cal Tech and is now in the advanced development engineering section of the semiconductor division of Westinghouse. He teaches a semiconductor course at the University of Pittsburgh in the evening.

Harvey Brownrout wed Selma Sunshine in June 1959. Harvey is finishing up at Harvard Law School and will practice with Davis, Hoxie, Faithfull, and Hapgood in New York. . . . Jack Buell is working in the digital computer laboratory at Convair Astronautics and lives a block from the surfing beaches of California. . . . Stanley Burg and his wife Dennise have a daughter, Debbie Lynn. Stan is working on radio traffic light control with Motorola. . . . Bill Calvert reports that Mac Edwards and Ed Johnson are also attending the University of Pennsylvania Medical School. Bill will begin his internship next year. . . . John Cardinal will be married to Carol Johnson of Pompton Lakes, N. J., in June. John is with Olin Mathieson Nuclear Fuels. . . . Terry Carney writes that he and his wife Marian have two children, Keller and Georgia. Terry is an Aero Research engineer at Langley Research Center.

If not previously announced John Coleman is handling Washington and Oregon work from 11049 Rowan Road, Seattle 88. . . . Joe Huber is working in Ohio and lives at 247 Goodview Street, Akron 13. . . . Mickey Reiss has joined Fred Culik to handle our Boston group and he may be reached at Tech or 20 Peterson Road, Natick. Mickey is working on his doctorate in astronautics.

Next month I should be working in Wyandotte, Mich., but please write in care of the old address. — Bruce B. Bredehoft, *Secretary,* 1528 Dial Court, Springfield, Ill.; M. Philip Bryden, *Assistant Secretary,* 3684 McTavish Street, Montreal 2, PQ, Canada.

'57

We met Stu Keeler trudging through the great 1960 snowfall at M.I.T. His exhausted appearance was due to a weekend of Red Cross emergency work, delivering blood, insulin, and people through snowdrifts in the incapacitated town of Boston. He will have his Sc.D. in metallurgy by September, then comes two years with

the Ordnance Corps. Though he has stayed away from Tech Show this year (an achievement for him), he will assume his old post as dock master at the sailing pavilion at the end of March if the ice gets off the river by then. Stu teaches advanced first aid courses and echoes Red Cross aims of first aid knowledge in every home and every car. I understand that the basic course costs nothing but some time — five evenings of two-hour periods. . . . Dick Hause, incidentally, is studying for his Sc.D. in electrical engineering with the aid of a Bell Telephone fellowship.

Dave Colling has been working at the Watertown Arsenal after spending six months in the Army at the beginning of 1958. He also is taking courses at Tech and will receive his M.S. in metallurgy in February, 1961. Presently, he, in collaboration with Paul J. Ahearn'50, is amending a paper entitled "Desulfurization by Calcium Innoculation Improves Properties of Cast Steel," to be presented at the annual conference of the American Foundrymen's Society in Philadelphia on May 13. Dave was married exactly two years ago to Jean DeMeo, who is quite active in the Technology Dames: she has recently become hospitality chairwoman for 1960. Even Jeanne, their one year-old-daughter, has made news by climbing the stairs for the first time. Dave tells me that he never again has seen his dog after yelling one night at the sensitive canine, "Get lost!" Although I have not been able to determine the validity of this story, I must use it to fill out the notes because the rest of you have not been writing to us. Other information gleaned from Dave reveals that Don Corrigan is at the Arsenal, while Al Wolff, Al Donaldson, Frank Yans, and Ronnie Engstrom are all at Nuclear Metals.

Hal Smith recently gave a lecture, "Dynamics and Control of a Nuclear Rocket Engine," to a nuclear engineering seminar. Hal expects his Sc.D. in this department by June. . . . Don Aucamp has returned to M.I.T. from Hughes Aircraft and is studying industrial dynamics. . . . Don Roellke, on the other hand, has left Instrumentation Lab after receiving his master's at Tech and is working in the operations research department at Westinghouse in Pittsburgh.

Willard (Butch) Dickerson, Jr., is assistant to the Director of Admissions. Although he assumed this position in September, 1957, he also has spent six months as assistant to the Dean of Students and as assistant to the Director of Student Aid. Since his marriage to Clara May Riddle, a graduate of Oklahoma State Central College, in the summer after graduation, Willard III has joined the family. In 1958 Butch and two others undertook development of the South Shore Sportsman's Park near Hanover, Mass., and sold the successful venture a year later. Not one to let grass grow under his feet, he, Arnie Amstutz'58 and Bob Jordan'58 founded the Scientific Development Corporation early last year for the purpose of marketing ideas of Tech men (and others, I should suppose).

Bob Stanfield was married to Jean Coates of Needham on February 7. Jean graduated from the University of New Hampshire. Bob is working on his Ph.D. in Course X. . . . Jack Mitchell is working at Lincoln Lab and living with his family in Lexington, where he is quite active in the Hancock Church and other community services. . . . Don Cameron was wed to Adrienne Hoffman, a Mt. Ida graduate, on February 25. Don had been serving with the armed forces in Japan. . . . Tom Moore, a lieutenant in the Navy, was married to Virginia McPartland of Winchester, Mass. Virginia is a graduate of Radcliffe. After a Nevada wedding trip the Moores continued West to Bremmerton, Wash., where Tom is stationed.

Alan, our wandering secretary (he generally writes from every place except the address shown below), in co-operation with Professor David Durand, has an article in the March issue of the *Journal of Finance*. . . . We heard from Wes Torrey a while back. He's been traveling about the country representing his employer, the Eclipse-Pioneer division of the Bendix Aviation Corporation. Wes writes that his department is tickled pink over the results they have had with Tech's electrical engineers, and would like more. Wes's address is 208 Schepis Avenue, Fair Lawn, N. J.

George F. Barry died accidentally of carbon monoxide poisoning in his car on February 4. He had graduated in three and a half years from the Industrial Management Department, and had been working at Raytheon. — ALAN M. MAY, *Secretary*, 525 East 81st Street, New York 28, N.Y.; MARTIN R. FORSBERG, *Assistant Secretary*, 11 Scottsfield Road, Allston 34, Mass.

'59

Looking over some past issues of The Technology Review, I noticed that there seems to be a direct correlation between the amount of Alumni news and the number of years since graduation. Let's try to prove this relationship by being the exception to the rule. . . . I guess we all know about the financial state of the Class of '59 as far as our Senior Week deficit. I sincerely hope that by the time this issue of The Technology Review reaches you we will have eliminated our $532 debt. If not, let's all kick in a little to help keep the class rolling.

We have some additional information on where some of our classmates are working. Ken Fink is with Douglas Aircraft in Santa Monica. . . . Bill Finneran is with Union Carbide in New York but will soon start his two year army tour. . . . Samuel Fryer is in the process of finishing his six months at Fort McClellan, Ala. . . . Carlton Gebhart is participating in the Hughes Aircraft master's fellowship program in Los Angeles. . . . Ed Haines is an engineering trainee with RCA. . . . On the distaff side, Shirley Harris is a research assistant at Research Institute for Medicine and Chemistry. Can anyone account for the remaining co-eds? I'm afraid I haven't heard from any of them.

I'm sorry I missed the announcement of George Haymaker's wedding last June. His wife was the former Lynn Linington of Minot, N. D. George is working for Alcoa somewhere in this vast country. How about sending me the details, George! . . . Elsewhere, Tom Healy is at the M.I.T. Instrumentation Lab. . . . George Heller is working for IBM. . . . John Henry is finishing his training assignment with General Electric. . . . Bob Herman is working with Ramo-Wooldridge and attending U.C.L.A. at night.

That brings us a bit more up to date. If you'd like to see this column longer next issue — WRITE! — ROBERT A. MUH, *Secretary*, 8 Merrivale Road, Great Neck, N. Y.

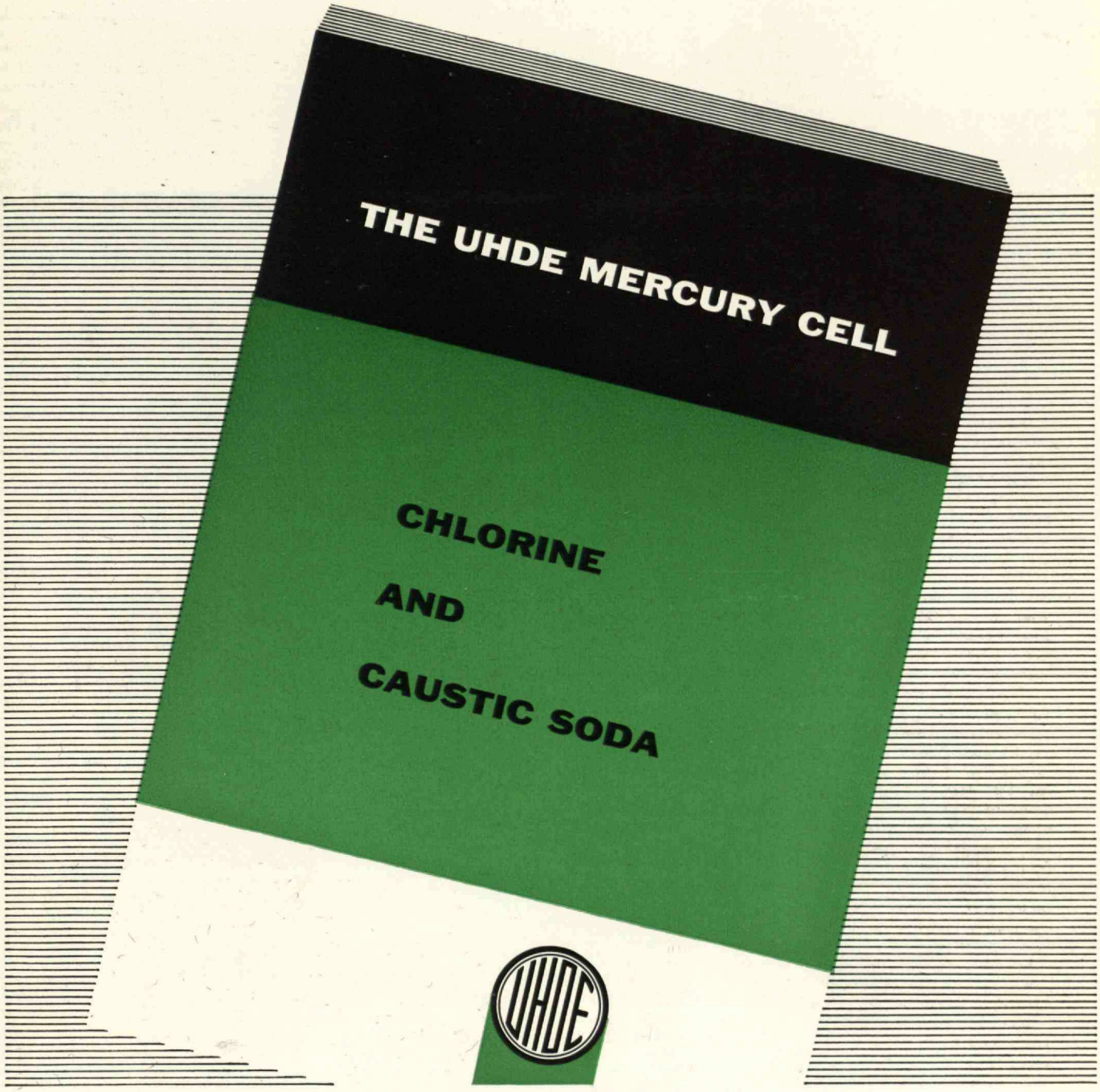
Sloan Fellows

The current group of Sloan Fellows traveled to Washington on March 27 for their annual visit to the Capitol. Meetings were scheduled with 20 government policy makers and administrators, including Vice-president Nixon, Secretary Anderson, Justice Douglas, Senator Johnson, and Senator Fulbright. During the week a luncheon meeting was arranged to give the former Sloan Fellows in the Washington area an opportunity to meet the current group.

A meeting of the Board of Governors of the Society of Sloan Fellows of M.I.T. has been scheduled by the Society's President, *William H. Feathers*'52 for May 18. Mr. Feathers has appointed a nominating committee to name new members of the board who are to be elected and take office at the time of the May meeting. . . . Timken Roller Bearing Company has announced the appointment of *Richard L. Frederick* '56 as executive director — international division, with primary concern for manufacturing in overseas locations.

Eugene J. Popma'58 is the new north division traffic manager of Indiana Bell Telephone Company, having been transferred from assistant comptroller in the company's Indianapolis office. . . . *Harrison T. Price*'55 is the new operations manager of Chevrolet's Powerglide transmission plant at Parma, Ohio. He moves to Parma from the position of general superintendent of production at Chevrolet's manual-shift transmission plant in Saginaw, Mich.

Three members of the Class of '57 have been reassigned: *Eldon Hanes* to New York as telephone division commercial manager for the lower third of Manhattan Island; *Richard Lang* as manager of the instrument department of the Westinghouse plant at Newark, and as of March 1, *John Mitchell* has the title of service engineer with AT&T, administering an organization which does the transmission engineering for the area north of Carolina and east of Ohio. He will be located at White Plains, N. Y. . . . *Frederic S. Beale* '39 of the electronics division of Westinghouse, has shifted his base of operation from Baltimore to San Carlos, Calif. — JOHN M. WYNNE, Room 52-455, M. I. T.



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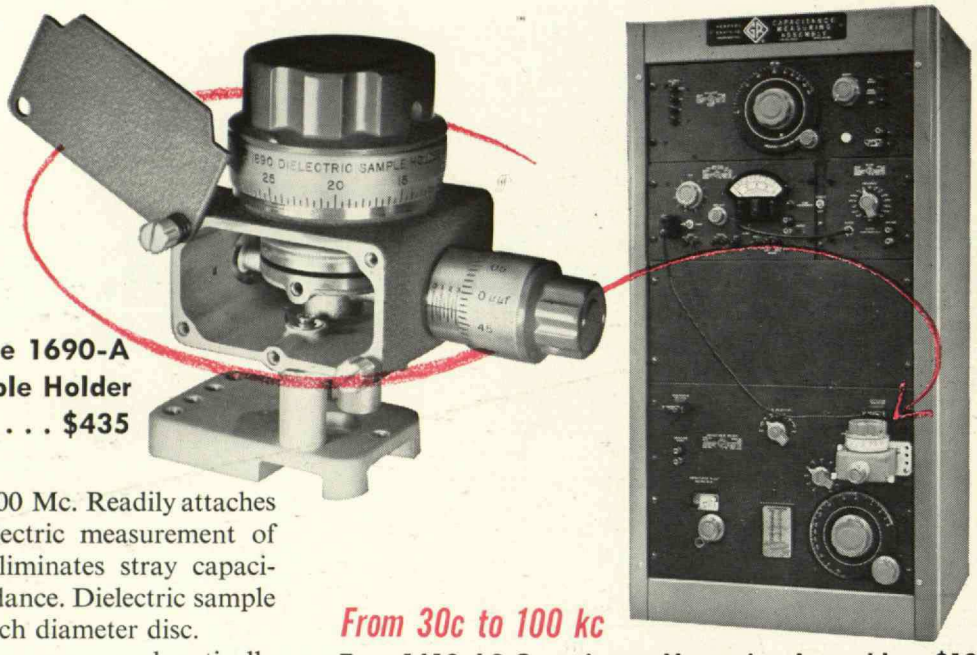
INSTRUMENTS FOR DIELECTRIC MEASUREMENTS



Type 1690-A
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Useful to better than 100 Mc. Readily attaches to bridges for precise dielectric measurement of solid materials; virtually eliminates stray capacitance effects and lead impedance. Dielectric sample size is standard ASTM 2-inch diameter disc.

The Holder's electrodes are ground optically flat and are circular. One electrode is fixed, and the other is driven by a precision micrometer screw for accurate determination of electrode spacing. The drive automatically disengages when the electrodes come in contact with the specimen, thus providing the same contact pressure in all cases and preventing accidental damage. A micrometer-driven vernier capacitor with a range of 5 $\mu\mu$f provides accurate increments of capacitance for measurements by ASTM resonant-circuit methods.

From 30c to 100 kc

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A complete system for measuring capacitance from 100 $\mu\mu$f to 1.15 μf at 1 kc; to 1150 $\mu\mu$f at frequencies to 100 kc. Will measure capacitance as small as 0.1 $\mu\mu$f using substitution methods. Accuracy, $\pm 0.1\%$ using direct method, $\pm 0.2\%$ for substitution method. Dissipation-factor range, 0.00002 to 0.56; accuracy, $\pm 2\%$. Assembly may also be used with liquid-dielectric cells.

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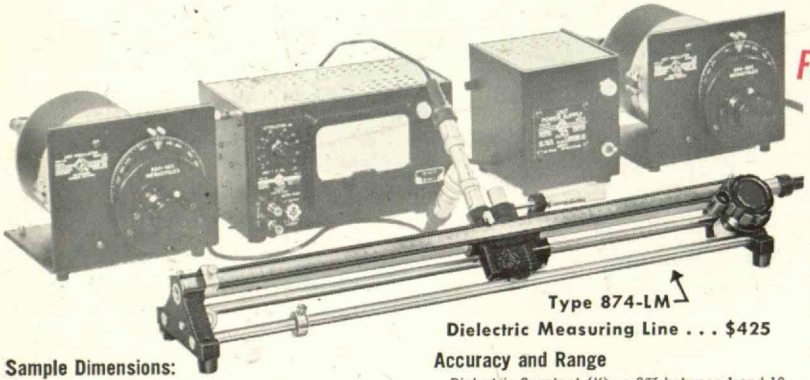
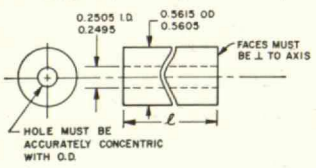
Can be used from 0.1 to 5 Mc with external generators. Range: direct method, 100 to 1150 $\mu\mu$f; substitution method, 0.1 to 1050 $\mu\mu$f. Accuracy and D range same as 1610-A2.



Type 874-LM
Dielectric Measuring Line . . . $425

Sample Dimensions:
Length dependent upon K and frequency



Accuracy and Range

Dielectric Constant (K): $\pm 2\%$ between 1 and 10
Dissipation Factor (D): $\pm(5\% + 0.0001)$ between 0 and 0.05

Frequency Range:

Maximum: 5000 Mc or $\frac{9000}{\sqrt{K}}$ whichever is smaller

Minimum: $\frac{200}{\sqrt{K}}$ Mc

For Measurements From 200 to 5000 Mc

The Type 874-LM Dielectric Measuring Line . . .

An air-dielectric, coaxial line whose field is sampled by an electrostatic probe mounted on a movable carriage. Also shown is a driving oscillator (right), and a Type DNT Detector assembly that is made up of an oscillator, mixer-rectifier, and combination i-f amplifier and null detector (left).

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A cylindrical dielectric specimen is fitted into the open end of the line. The frequency of the signal source driving the line is adjusted until a voltage minimum is detected with the probe about a centimeter away from the sample. Dielectric constant and dissipation factor are then quickly calculated from two simple algebraic expressions.

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